

MILITARY REVIEW

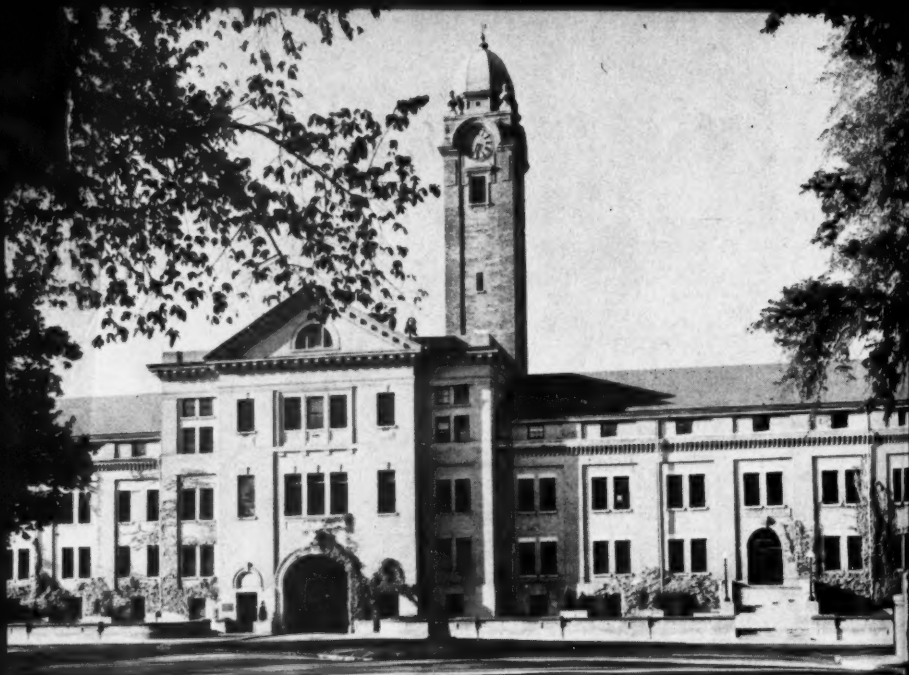


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COMMAND AND GENERAL STAFF COLLEGE

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Principles of Sea Power

Admiral Robert B. Carney, *United States Navy, Retired*

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MANY things continually happen in the world that call for a continuing new look in the field of national strategy. Some of these changes, such as those in the scientific field, may evolve at a rapid pace; in the atomic age the ominous signs must be recognized, for if men do not come to their senses, catastrophe will overtake us all. But in peace, uneasy stalemate, or cataclysm, the sea will be important—and it is of the sea and sea power that I would write.

Before attempting to arrive at conclusions concerning the subject of sea power, one must consider the broad and eternal aspects of strategy; and, in the context of any particular period, the special factors must be objectively scrutinized. Also, one must give thought to the practical aspects of the land and the air as well as the sea, for each of these strategic elements has had and will continue to have differing effects on the life of man—differing economic effects as well as political and sociological differences.

I mention the significance of the land and air because, although I will talk about the relationship of sea power to military and national strategy, sea power

can never be considered in isolation or as a sufficient force unto itself. We must continually bear in mind, however, that the sea is nevertheless a vital factor. It can no more be disregarded than the realities of the good earth can be dismissed from basic life and philosophy.

What Is the Sea?

Inside the United States, with her expanding economy and worldwide commitments, the sea's essentiality is re-emerging as a vital factor in the maintenance of her own standard of living, and improving the living standards of all those countries with whom she is associated in friendship.

Let us pause for a moment and take a brief look at what the sea means to the United States. Use of the sea is essential to our economic strength and to our continued prosperity. It is a highway over which both raw and finished products of the free world can be exchanged, thereby encouraging international industrial expansion and growth. The seas provide the United States an avenue over which she can project her military strength; it enables her to support and sustain armies and air forces overseas, both those of her own and those of her allies. The seas are an essential key to peacetime prosperity and wartime survival, and what is true for the United States is true for our allies as well. The bonds of the sea give courage, confidence, and cohesion to

Every nation that depends in any degree upon the use of the sea for its economy and security must ensure to itself the measure of sea control which is commensurate with its needs, resources, and national policies

peoples who band together for their welfare and their security.

If the sea is vital to the United States, think what it means to countries like England and Japan, which are completely isolated from the rest of the world by blue water. Think what the sea means today in Turkey: on her north, it helps to separate her from a hostile land; to the south, it is a tie to the Atlantic Community. To them all, secure control of the seas in friendly hands could mean, in its starkest terms, to survive or perish.

What does the sea mean to the Soviet Union? First, let us cast aside any illusion that in this era we are dealing with the bovine muzhik of song and story. We are dealing with a new Russia that has great mental and productive capacity. We are dealing with a new Russia that has learned many lessons over the years, some of them through bitter experience. One of the lessons they have obviously learned is that of sea power's enduring influence.

Soviet man, standing on the Arctic ice-cap that floats on the polar waters, could not fail to understand the vast strategic element which encircles Eurasia and Africa. He could not fail to see that it covers nine-twelfths of the globe; nor could he miss the fact that the Eurasian Continent, with that of Africa, together cover two-twelfths of the globe. Certainly, he must appreciate the critical importance of the sea to those people who are resisting the

Communist ideology. All of the contemporary signs point to the fact that the Soviet leaders are very alert to the importance of maritime influence, as indicated by the apportionment of their national effort in this direction.

All things point to a Soviet Union that is smart, relentless, and swiftly progressing, fully understanding that if she is to further her plans and oft-stated objectives, she must develop a sea power capable of controlling those watery areas which are essential to the achievement of her self-prescribed tasks.

Thus even from a hasty consideration of the sea's influence on the world we live in, we must conclude that it remains a vital factor in the affairs of men.

The Pattern

At times in history it would seem that mastery of the sea had been achieved almost accidentally and with little or no understanding of the principles involved. Some nations, perhaps, grew to maritime greatness—and so to world power—through a slowly expanding process of trade stimulated by individual merchants; others were forced into a realization of the sea's importance as the highway for exerting the force and pressure of their armies. A few—and a very few—individuals saw the light clearly and discerned the physical and economic laws involved. Such a one was Lord Nelson whose simple thinking concentrated upon the enemy's sea forces as the single and everlasting goal. Instinctively he knew that the destruction of those forces, wherever he found them, removed the enemy sea threat and assured his own country's ability to use the sea with unhampered freedom to its own advantage.

It was Alfred Thayer Mahan, however, around the turn of the century, who made the first determined effort to inquire into the principles of sea power and to analyze its influence on geopolitics. From Mahan's inquisitive mind the world first was to

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learn something of the basic pattern, for he grasped sea power's influence on history and was astute enough not to confuse weapons with principles. It was his ability to keep his thinking unclouded by the limitations of the weapons of his day that leaves much of his thinking still applicable to our present and to the future.

From Mahan's isolating of causes, effects, factors, and results emerged certain ever-recurring patterns which gave a clue to the existence of underlying fundamentals of universal application. And this was no mean achievement because throughout history there has been an endless and confusing interplay between economies and armed forces, between need and capability, and between weapons and tactics—each in turn seeming to be a cause, and each at times appearing in the role of counter-measure.

A broad study of the complex sea itself, and its true meaning to mankind, reveals a great pattern—a pattern not unlike the combined effect of many transparent overlays. Finding the prime essential is difficult. But the cornerstone truth can be stated thus: although control of the sea is good for all who can benefit by it, determination of the needed *measure* of control is the first step in harnessing this great power for good or evil.

There is no point to a nation acquiring more sea control than it needs in a given area at a given time. There are areas and sealanes that are vital to a nation's interest; areas where there is an actual need for control. There may be other areas where mere denial of certain areas to the enemy, or temporary control, will suffice.

Continuing to examine the mosaic, other elements of the pattern appear: national aims, national policy, the sea as a help or a hindrance, and the tools to harness the sea or combat it. The picture is kaleidoscopic and requires patience and discrimination to sort out the factors, great discernment to detect telltale periodicities

which give a clue to the current workings of principles, and great objectivity to isolate and clearly state the fundamental principles.

Means of Control

The Polynesian does not think of the sea in the same terms as does the New Zealander, the Australian, or the Japanese; nor is the Polynesian forced to exercise the same measure of control as are the peoples and nations that constitute major political communities.

Whether the sea is viewed as a means of livelihood and survival, or whether it merely offers an opportunity for exploitation by smugglers and pirates; whether it provides a medium for wartime operations; whether it is an avenue of commerce and a source of raw materials—such factors determine the measure of sea control necessary for the community concerned.

We might reasonably conclude, then, that the degree of sea control necessary depends on desires and capabilities, need and courage, threats and resistance, appetites and weaknesses—all of the motivations of a nation interested in the matter. Geographic accident cannot be overlooked in considering the necessary measure of sea control. For example, the chart reveals Japan to have a much greater opportunity than Germany for using the seas by virtue of her geographic placement. She has less restricted egress and entry. On the other hand Germany is in a more favorable position with regard to industrial self-sufficiency. There is every indication that the importance of geography will continue as we cross the nuclear threshold.

Prior to World War II the necessary measure of sea control was thought of in terms of the various types, qualities, and tonnages possessed by a given individual nation; in terms of individual national needs, inadequacies, desires, and political

climates. With the signing of NATO and SEATO, plus all the bilateral and multilateral agreements throughout the world, sea control must be given collective consideration, with each nation contributing those strengths best suited to its technological, economic, political, military, and geographic circumstances.

One country may be conveniently endowed with nonmilitary maritime strength, another may be rich in mineral deposits, while still another may have specialized in building and operating combatant tonnage. Under the principle of collective security, the seas provide a catalyst for like-thinking nations to pool resources so that the little pieces may be fitted into a grand mosaic.

Together, the free nations are evolving a pattern of combined strength, variety, and imagination which, it is to be devoutly hoped, will enable them to use the seas in the pursuit of their common objectives and give them the capability of denying their use to any of freedom's challengers.

As it has been historically necessary for individual nations to derive their own concepts and measures necessary for control of the sea, consistent with their national aims and policies, so it is necessary today for allied groups of nations to think in terms of the feasibility and practicability of their combined aspirations.

National Policy

National policy is something that cannot be defined in a sentence or a paragraph. Actually, it is the sum total of the many, many decisions made at the top level of government. Some of the decisions are broad in scope; many are small and technical. The United States has developed broad national policies with respect to matters affecting national security. National policies exist concerning such matters as immigration, tariffs, and foreign exchange. There are national economic policies with respect to certain regions of the earth; broad policies have been crys-

tallized concerning certain nations. We have national policy on items that must be imported and exported, some of which may be of such importance that we would be willing to use military force to assure safe arrival. We have policies concerning detailed relationships with individual countries and we have counterpolicies concerning national policies of other countries.

More recently national policies have been made with regard to nuclear matters; decisions have been made concerning what items will be produced and what atomic information will be disseminated.

So it is with all nations. As the myriad national policies impinge on the international scene, some will result in mutually beneficial concepts; others will generate unpleasant frictions; and frictions, if serious enough, can result in actual armed conflict.

A major United States policy is based on the precept that unity in the free world will provide strength against the avowed objectives of international communism, and strength in turn will contribute to security. It is based on the belief that continuing efforts must be made to extend and strengthen the free world morally, economically, spiritually, and militarily. It, therefore, follows that many of the United States national policies are associated with the basic interests of freedom-loving peoples everywhere—including the voiceless ones living in a spiritual vacuum.

Of great significance is the fact that the United States has no aspirations with regard to additional territory. She has foregone the booty of past wars and consistently has followed a policy of granting and fostering independence for other peoples. Her people have prospered under a system of free enterprise.

The ultimate objective of the United States Government is a genuine peace. By instinct we would wish all men to have their God-given rights to enjoy a full

and free life, and to enjoy the blessings of liberty and the pursuit of happiness; however, this noble wish may be in conflict with customs, mentalities, and racial traits attuned to different philosophies, perhaps better suited to needs in other parts of the world.

A nation, then, having settled on certain national policies, finds it is necessary to determine what can be done by way of accomplishment. This is the beginning of the formulation of a national strategy. When a nation is evolving a strategy, it must always ask itself these questions: What would the political community like to achieve? Are those objectives feasible in the light of existing conditions? Obviously, no nation should set goals for itself too far beyond its reach; that might well invite disaster. It should be noted, however, that as a nation's capabilities increase, it can extend itself a bit further in the pursuit of its objectives; and, conversely, as capabilities decrease, ambitions must be curtailed.

National policy being actually an expression of those feasible and flexible programs for the common welfare, it is axiomatic that the strategy which implements policy can never be static. Strategy accommodates to circumstances, and circumstances are never static. Consequently, it should come as no surprise to find that military planners constantly review and alter their strategic concepts.

Often it is necessary, in determining a national policy, to make certain assumptions with regard to other peoples' intentions as well as their capabilities. It follows that national planners and policy makers, if they are wise, will review those basic assumptions often and carefully. When Yugoslavia broke with the Soviet bloc, it called for a new appraisal by all the nations of the free world as well as those nations under Soviet control; now a further review is in order. The creation of a free Austria will have its

effect on the national policies of many governments vis-à-vis this newly independent country.

If broad objectives are to be achieved, there is implicit need to plot sound courses of action predicated on realism as well as idealism, and the implementing policies will be more effective if clearly understood by friend and foe alike.

Here is a most important thought: Just as it is difficult to hold a ship in position without way on, so it is more difficult to achieve a national objective, which is nothing more than an attempt to maintain the *status quo*, in the face of dynamic opposing policies. A nation or a race that is expanding and driving poses a hard problem for those that are striving merely to maintain stable conditions.

Military Forces

What military forces do the coalitions of freedom need, and why? They obviously need arsenals that would defeat our most probable enemy. Matching the free world strength against his, we can only conclude that the free world cannot meet him solely on the ground, even if we were content to fight the battle his way. He has nuclear potentials now; he has an existing and powerful army; he is building a navy which is of increasing significance in extending his area of control and projecting himself seaward.

In this hydrogen age the first thing needed is the power to deter—a strength so convincing that no enemy, however strong, could come to any conclusion other than that the surest way *not* to achieve his objective would be to start a conflict which would make rubble of all the things he had endeavored to build. That is the first requirement of our military strength.

Perhaps this will bring about no clear-cut decision, but even an uneasy balance is preferable to an all-out trial of strength. But, suppose men fail in the effort to prevent war. Then we must *win* it. And it can only be won by convincing the en-

emy of the futility of his effort, by destroying his forces, by hamstringing his power, and by breaking his will to fight. To do this we must prevent the spearheads of his efforts from succeeding. We must prevent his armies from overrunning friendly territory. We must blunt his capabilities, both strategic and tactical. We must foil his efforts to cut our sealandes. We must put the vise on his own sources of sea supplies. Furthermore, we must take every practical step within our means to prevent an atomic attack from destroying the vitals of the United States, without which freedom could never win.

We must be ready to meet the holocaust, but there is no assurance that the holocaust will come and there is no justification for predicting that lesser conflicts will not continue to plague us.

The option may not be ours; we must be ready for a variety of contingencies. Consequently, we cannot assume that the atom as a weapon is a substitute for everything, but must regard it as something additive. We must still retain the capability for dealing successfully with lesser aggressions which, from the Communist point of view, could nicely add up to total conquest.

All this boils down to the need for a strategic air capability, a national air ability to deliver tactical atomic weapons by a variety of delivery systems, an army with atomic weapons to smash the human waves with which we might be confronted, and a navy which can project our power against the enemy regardless of the threats that may come from air and sea—a navy that can meet and defeat any enemy threat advancing by sea. All of these things must be bought and maintained from the resources allocated to the military effort.

Some of our military resources can profitably go to our allies, not as a giveaway but as an actual extension of allied military strength. Within our own family,

we must work out a good division of resources among the services. There is no single formula for it. It is a matter of sound judgment, long and thoughtful discussion—sometimes concession—with the emphasis falling on the absolute and unchallengeable necessity for surviving an all-out attack, and for wrecking the enemy's capability for delivering an attack from which we could not quickly recover. This point is made with a specific purpose. There can no longer be narrow and partisan thinking in the business of national defense; and this is particularly true of the United States because of the unique position she occupies geographically and economically in the world.

Men can no longer afford to be blinded by fanatical, single-service, or single-concept thinking.

With the understanding that naval thinking must constantly remain in this context, we can scrutinize the place of sea power in the scheme of national policy.

Sea Power

After national aims have been determined, ways and means must be planned for their attainment. In certain areas, diplomacy may suffice. There will be others requiring a close examination into financial structures, and perhaps into the delicate shades of internal political thinking; other objectives will require an examination into the availability of raw materials, production potentialities, and the manpower situation, both qualitatively and quantitatively. In the event that military posture is involved, it must be decided if the essential forces can be maintained as a precaution against the chance of challenge.

It is scarcely possible to consider those facets of national power and policy without consideration of the future availability of sea communications. This is true whether giving consideration to the great pulsating pressures, thinking in terms of limited peripheral struggles, or contem-

plating all-out atomic aggression. The strategy of the free nations is inextricably tied to their ability to move freely on the sea and in the air.

There is need for both a maritime supremacy, and, if you like, an "airitime" supremacy of Atlantic waters; the Atlantic Ocean is the very essence of the Atlantic Alliance. The Atlantic Ocean and its peripheral areas have twice been factors in the causes of war and in determining war's outcome. Without the ability to project and sustain military power in Europe, without the ability to build and support overseas bases and allied war industries, without the ability to exchange raw materials and finished products, such a coalition as NATO could not exist. It could never have been contemplated; nor in southern Europe could the Greeks and the Turks have joined the Atlantic Community without the assurance that the Mediterranean Sea could be bridged and effectively controlled by friendly forces.

When Greece and Turkey entered NATO in February 1952 their governmental leaders stated that their continued participation in the unfortunate event of hostilities would depend on resupply and support from the sea. A glance at the geography of the Mediterranean basin explains the importance which those nations attach to sea communications. Roads to sources of resupply are virtually nonexistent, terrain is difficult, and the land lines of communication easy of interdiction. Bulk transport cannot be handled by air; and by far the greatest part of their requirements must come by sea.

The picture is no different if viewed from north Europe, Denmark, and Norway. Their future and, yes, the future of Germany and Great Britain would be gravely threatened without allied ability to control both the North and Norwegian Sea areas.

So it is, also, in the Pacific. The Manila Pact would be meaningless if there

were no sea and air communications to help sustain the will of the peoples; nor would the ANZUS Treaty have been meaningful; nor would the Chinese be able to maintain their Government in Formosa; nor would courageous patriots from the Philippines, Pakistan, and Ceylon have been safely able to express themselves forcefully at Bandoeng in behalf of freedom's cause; nor could private investors have risked their funds in such places as the Belgian Congo in the development of overseas resources; nor could small countries like Guatemala be able to effectively resist Communist infiltration; nor could Japanese industry and ingenuity become a bulwark of freedom in the Far East; nor could South Korea maintain her freedom—if Pacific Ocean supremacy had been in the hands of unsympathetic powers.

Significance of Sea Power

More specifically, let us consider the significance of sea power within the framework of global economic necessity. How important does the sea look through the eyes of the Japanese industrialist whose country in 1953 had to import more than 4 million tons of iron ore in order to meet the demands of her production schedule, and who during the same year had to import nearly 5 million tons of coal coke, and over 5 million tons of petroleum? How important does the sea look to the British who import virtually all of their raw materials with the exception of coal? How important does it look to the West Germans, the Italians, the Swedes or the French, all of whose imports exceed their exports? Certainly one can come to no other conclusion than that the economies of the major importers of the world would be disrupted if sea communications were broken.

The pattern of Soviet foreign trade is currently undergoing some change; there is a discernible trend in the direction of

more and more business on the ocean highways. At the present time the Soviets are importing, as a matter of convenience to them, considerable transport equipment—especially merchant vessels. They are still going abroad for textile fibers and foodstuffs, and their machinery imports are heavy. Lately, the Soviets have stepped up their exports in such commodities as petroleum, grain, timber, furs, minerals, and certain types of machinery. Within the last 2 years, for instance, Soviet oil drilling machinery exports have appeared on the international market, and petroleum has supplanted traditional foodstuffs as the number one export commodity.

The free allies cannot take their maritime supremacy for granted. This is not a partisan viewpoint. It stems from information concerning Soviet maritime development, the implications of which are extremely serious. The continuing increase in Soviet maritime strength will surely give rein to further Soviet ambitions which, in turn, may lead to a more ambitious strategy.

The question of strength and strategy is a little like the chicken and the egg. Strength can encourage wide-thinking strategy, and lack of strength can restrain it; on the other hand a firmly determined strategy can lead to the creating of strength to support it. Nobody knows which came first—the chicken or the egg; nor is it always clear whether strategy makes strength in the form of military forces, or conversely, that military forces determine strategy; perhaps a little of both.

Objective in View

In the case of the Soviets, they are surely creating a large number of good naval tools, and they are doing this with an objective in view. We can only assume that the nature of the objective is a broader mission for Soviet naval power; and perhaps they aspire to the one under which the United States Navy operates: to gain

and maintain control of the seas and deny their control to any enemy. This may well be the ultimate Soviet aim. In the meantime they have created a measure of naval power, and they must accommodate their strategy to the maritime strength which they have been able to generate.

Building Program

As yet the Soviets do not have naval forces that will permit them to contemplate aggressive seizure of overseas territories. But they do have a building program that will permit them to extend their present strategy. As their training program improves, as their building program comes to fruition, and as they become skilled in the ways of bluewater warfare, their thinking will be materially affected by their increasing capability. Today, there can be little doubt that the interim strategy of the Soviet Union is one of controlling selected sea areas adjacent to her own coastal frontiers, and then expanding that control as her resources and capabilities increase.

In certain areas there has already been an impingement on the potentialities of allied naval forces for exercising maritime control; for example, the Sea of Okhotsk, north of Japan. Here, with the support of nearby land bases, the Soviets' surface and naval air forces, combined with an extensive submarine potential, now have a substantial capability for challenging use of that restricted sea area by the naval forces of other nations.

This is not to say that Soviet military strength could not be challenged in that area. It could be challenged by aerial threat against their bases and forces; it could be challenged by resolute submarine operations. Perhaps, casting up the present relative maritime capabilities of the Soviets vis-à-vis the free nations in that particular area, it might become a watery and uninhabited desert except for a few rugged scouts and pioneers. But even that

is significant because it signals a reduction in what was once a total and clear-cut allied sea supremacy.

A glance at the world chart reveals other areas of growing Soviet naval power, such as the Sea of Japan, the Barents Sea, the Black Sea, and, of course, the Baltic. By judicious positioning of their forces, the Soviets could pose some threat to the freedom of action of allied forces in Asiatic coastal waters.

Soviet submarine capability introduces the possibility of at least intermittent extensions of military maritime influence beyond their own coastal waters.

While it is true that these new areas of Soviet maritime interest could also be made difficult for the operations of Soviet Naval Forces to the point of neutralization, the very fact of need for such neutralization is indicative of the lessening of the worldwide margin of superiority of the naval forces of the allies. This fact, unpalatable and startling as it is, should put an end to complacency. It must be ever present in our thinking and planning for the present and for the future. It must be appropriately reflected in our plans and in the additions we make to our inventory of ships, weapons, and planes.

Specifically, I would point out that although the strategy of the Atlantic for the moment appears to be fairly stable and well understood, there is a need for the greatest vigilance in the determination of our strategy in the Pacific because of the creeping reduction of the maritime differential. There are scores of millions of friendly Asiatic people whose very existence depends on the sea. We must not risk the development of a situation which could eventually challenge our control of any of those Pacific sealanes essential to allied security and cohesion. A steadily increasing Soviet maritime power constitutes a threat to that security and cohesion.

This era is reminiscent of the thirties,

when it dawned on our country that a 2-ocean navy was urgently needed.

Our maritime commitment to NATO, and the realities of the Pacific situation, again establish the requirement for a 2-ocean concept—this time on a broader international base. At the moment, the United States is juggling forces from the Atlantic to the Pacific to meet the exigencies of both oceans. But the existing United States Naval Forces are not enough to meet the instant and urgent needs of a global war. If the tragedy of a total war should confront us, we would need a greater capability than we have in order to meet allied requirements in both oceans.

Economic Expansion

Soviet expansion in the Pacific is not limited to the maritime field. There has been a vast amount of economic expansion in eastern Siberia so that, today, the Soviet Union is achieving a more nearly self-sufficient status in an area that has access to Pacific trade routes. This is food for Americans to contemplatively chew on and to digest slowly.

In the northeast area of Siberia, the Soviets are reported to have on-the-spot access to such minerals as antimony, lead, zinc, tungsten, sulphur, and bauxite. There are strong indications that in this sector they may be digging uranium as well as pitchblende, which is another source of uranium as well as of radium. Substantial coal resources have already been found and developed to provide much needed fuel and local power for industrial installations.

And what is also of significance is the fact that in this curtained land area large gold deposits have been found. As a result there has emerged on Siberia's northeast coast an entirely new city by the name of Magadan. Populated mostly by slave laborers, it is probably the world's fastest growing city. Two decades ago the area was inhabited only by native fishermen. In 1949 the population had grown to

about 50,000. Four years later it had grown to 100,000, and, according to the Soviet State Institute for City Planning, construction plans anticipate that the city will have doubled this size by 1963. The Magadan seaport offers one of the best sheltered harbors on the Sea of Okhotsk. It has depths of 36 feet and will allow freeswinging anchorage for over a hundred naval vessels, including combatant ships of the very largest types.

While the spotlight is on the Soviet Far Eastern potential, perhaps a note should be made of the city of Komsomolsk and the Amur shipyards of the city which were established in 1932. Within 2 years from the time the city was established, limited shipyard production had begun, and full production was underway 5 years later. The Amur shipyard is now the largest producer of new construction in the Far East and has already built heavy cruisers, destroyers, and submarines.

In addition to its shipbuilding capabilities, this city produces ships' steel; it has an arsenal and factory that produce diesel engines as well as machinery spare parts. Thus we find that today the Soviet Union has in embryo on her Pacific coastline all the basic ingredients for economic growth and maritime achievement; and, although there is much yet to be done, the Soviets are building cities, factories, and shipyards in a geographical area where they have access to the open oceans; where they have protected harbors; and where they have already found an abundance of natural resources and apparently are continuing to make new discoveries. We know that, nationally, they are gaining technical competence; although much of their labor is slave, they have it in abundance. All of the signs would indicate that the Soviet Union has every intention of developing her full power potential in the Far East, and that sea power will play an ever-increasing role in the scheme of her national policy.

If the sea is becoming increasingly important to the Soviet Union by reason of her economic expansion and political objectives, it is no less important to the United States, because military security and economic interest are involved.

Self-Sufficiency

Americans find it difficult to believe that the United States is not now and, in fact, never has been a self-sufficient Nation. As far back as our country's beginning, our merchants needed foreign trade in order to expand and prosper; prior to World War II the production of an American automobile involved the importation of basic ingredients from 60 different nations; of the 77 strategic critical materials needed by the United States, she can regard herself self-sufficient in only 11.

For instance, how many Americans realize that much of the chromite used in jet engines, gas turbines, gun barrels, armor plate, and ammunition comes from far-away Southern Rhodesia, the Philippines, Yugoslavia, and Turkey? How many people stop to think that much of the manganese—this, incidentally, is a highly critical item as steel cannot be produced without it—comes from Africa and India? Lack of mica used as insulation for electric wiring could seriously cripple our electronic production and retard our military operations. Most of the mica comes from India and Brazil. Until and unless we can develop adequate domestic sources or substitutes, the problem remains.

I underline these products because they are vital in the construction of naval weapons vital for today and even more vital for tomorrow. Newcomers like the submarine *Nautilus*, the carrier *Forrestal*, and the destroyer *John Paul Jones* would not be with us today had our country been unable to import from overseas.

There are other critical materials, of course, which are vital to our peaceful civilian economy as well as to our war

industries, and which must come to the United States via the sea. More than 60 percent of the antimony, required to harden metals for engine bearings and used in the manufacture of bullets and storage batteries, comes from countries in South America, South Africa, and Europe. Amosite, needed for the production of asbestos, which is used as a lightweight, steam-resistant turbine insulation of naval vessels and for which there is no substitute, can only be found in the Union of South Africa.

Nearly 70 percent of the bauxite used in the production of aluminum comes from overseas—from South America and from far-off Indonesia. United States dependence on foreign bauxite continues to increase.

Other mineral deficiencies include cobalt, used in the manufacture of jet engines and gas turbines; columbite, used in the production of stainless steel and refinery equipment; tantalite, used in heat-resistant superalloys for jet aircraft and guided missiles, and very important in electronic equipment, cutting tools, guided missiles, and jet aircraft. All these things must be imported in quantity from overseas.

Trade expansion is vitally related to sea power in the scheme of United States national policy. Both exports and imports have more than doubled in the United States since pre-World War II days. Since World War II the United States has committed herself in varying measure to the assistance of some 64 nations of the world, spanning 6 continents and 3 oceans, and constituting about 54 percent of the world's population.

I repeat that all of the American dollars and human effort being placed in overseas improvement and development for our transocean friends would be lost if we lost our ability to use the seas. Likewise, all the investments that have been made in overseas airbases and army in-

stallations, both for the use of the United States and for the use of our allies, would go down the drain if sea transport were not available to sustain them.

The economy and the efficiency of sea transport in our day is implicit in the recently approved plans for the Great Lakes-Saint Lawrence Seaway extending the ocean highways to the very heart of the North American Continent. This seaway will provide an alternate route for low-cost mass movement of raw materials and finished products. It will provide convenient access to shipbuilding facilities and ship repair facilities in relatively secure areas.

Such projects as these indicate the faith of the private citizen, both in the United States and Canada, in the future use of sea communications.

In light of the foregoing, one can come to no other conclusion than that sea power's influence is growing in the affairs of man everywhere. And as the atomic era dawns, bringing with it both beneficent and destructive atoms, perhaps the greatest golden age of sea power is yet to arrive.

National Power

Although this discussion focuses on sea power, it should be borne in mind that sea power is but one component of national strength. It is one of several potent military elements integrated into this thing we call "national power."

Strength at sea, although tremendously valuable to the nation possessing it, is not sufficient unto itself to provide national security. Sound security must be built of many materials—maritime power, airpower, landpower, industrial power, and the power of human intellect and will—all mutually supporting in a common effort. Furthermore, there is every indication that it would take more than any single nation to win a major struggle in this complicated age. Victory in such a struggle would require the combined resources and

will of resolute allies as well as a powerful and vibrant United States.

One of the characteristics of maritime power is its flexibility. A versatile fleet can undertake, at least on an interim and partial basis, tasks that would be assigned to other forces were they available. For instance, in southern Europe today much of the allied tactical air capability is being provided by the United States Sixth Fleet. The Sixth Fleet is in no sense a proper substitute for a land-based air organization in concept. But because of national budgets and economic stringencies, and because of the political implications of deploying forces within other borders, the Sixth Fleet's air contribution is valuable as the only available substitute for indigenous tactical air augmentation. The fact that it has nuclear capabilities, of course, gives it an added potential.

Additionally, the Sixth Fleet is not only a military force, but also a political manifestation of United States willingness and ability to assist in keeping the seelanes open and providing direct air support in the Mediterranean.

Sea power gives the other facets of military power an added versatility and flexibility. It increases ability to seek out the enemy on favorable terms. Also, unfortunately, sea power introduces an element of global threat in the hands of those bent on aggression. As long as the Soviet Union was strictly a landpower with air and naval power components limited to World War II capabilities, her shadow lay over her immediate continental neighbors but did not constitute a threat to the Western Hemisphere. Now her offensive air capabilities and increasing naval strength are widening the horizons of militant international communism. The significance of Soviet sea power lies in the fact that it opens avenues for consolidating any effects attained from application of her long-range air striking

capability. This should be apparent, for it clearly parallels our own military understanding and philosophy.

Actually, the elements of military power must all be closely integrated and united, for they are as mutually supporting as they are dependent upon one another for success.

Tools of Sea Power

We must conclude then that retention of general sea supremacy is imperative if our national and international ambitions and policies are to be realized. We must also conclude, as a corollary, and however reluctantly, that complete and absolute sea control is probably unachievable at this time; and, therefore, that some selection must be made as to the control measures to be undertaken. The self-imposed limitations and calculated risks involved will reflect and be reflected in national policy—the final determination being the types and quantities of tools that can be made available for the mission and tasks accepted.

Planning the tools of tomorrow involves much laborious study; but there are certain factors that can be understood by laymen and factors in which the layman would be interested. The tools of sea power will always depend on two fundamental factors: the tasks which a nation knows it will originate in support of its own positive national strategic policies and objectives; and the tasks which will be imposed by an enemy's aims and capabilities. It is difficult accurately to estimate a potential adversary's intention. However, if we are familiar with some of the elements of the potential troublemaker's strength, we can do some calculating as to his capabilities, and, having arrived at sound conclusions concerning enemy capabilities, it is possible to develop counterplans and countermeasures.

In order to fashion the tools of sea power, then, there must be a sound understanding of our national peacetime objec-

tives, the objectives of friendly competitors, our objectives to be sought in the event of hostilities, and the probable objectives, capabilities, and intentions of those whose aims and ideas are assumed to be in potential conflict.

After government leaders have made these determinations, they can begin to fashion a philosophy of defense and offense, and, in the case of maritime strength, to sketch out the types of ships, aircraft, and facilities needed, and the characteristics that must be built into weapons.

For example: With what is known about Soviet submarine capabilities, the United States and her allies can do some very realistic planning. We know that submarines can be got at in different ways. They can be destroyed at the source—which, of course, involves projection of maritime power from the sea. They can be intercepted at their points of egress from their various naval bases around the globe; they can be intercepted en route to their targets—which involves detection and attack before they reach convoys or other objectives. Or it may be necessary to fight off the submarine after it reaches attacking position; this involves close-in protection of ports and convoys. Thus we see the need for mining operations, killer submarines, convoy escorts, hunter-killer forces, carrier striking forces, and such passive defense measures as may be required. Further study gives a good indication as to how many tools will be needed—what kind of weapons—the types of radar and sonar—and so forth.

Continental Defense

This, of course, is but one facet of the maritime problem; but in like manner it can be determined what is needed in the amphibious field, mine warfare, aerial reconnaissance, continental defense, and other areas.

Continental defense, incidentally, has always been a specialty of the United

States Navy, and, today, the Navy has certain new responsibilities and contributions of great significance.

Continental defense involves more than defense against an intercontinental bombing attack. Submarines have a potential for attacking our territory; they can be equipped to carry an assortment of weapons, including aircraft and guided missiles with nuclear warheads.

In this era the United States must face up to the danger of surprise attack on her homeland, for the protection of our vitals is essential to the very survival of our allies as well as to our own welfare.

The sum total of the consideration of all of these factors ultimately expresses itself in the size and composition of forces to be kept in being, the reserves of people, weapons, and supplies to be kept in readiness, the annual costs, and the plans for a mobilized populace and economy. The Navy's share will be balanced against other military and economic needs.

The Navy will be required to protect sea areas vital to the United States and to allied interests both before and—God forbid—after the atom. The Navy will need forces to support national commitments overseas, to render active combat support to sister services, to launch and intercept guided missiles, in short, to perform any military task that can be effectively projected from blue water.

As pointed out before, the answer will be different for every country by reason of its geography, its economy, and its neighbors—friendly and unfriendly. The problem of the United States Navy is perhaps the most complex of all and, therefore, affords the best subject for study.

What does the United States Navy need to carry out its roles and missions? What does it need in order to carry out its commitments to the military forces and economies of our allies? Where will navies

be required to fight? What will they be required to do? From the answers to such questions, we derive a fleet composition made up of carriers to carry the air war to regions otherwise inaccessible, carriers configured for operations against enemy submarines, forces for the protection of shipping against all the threats that can be brought against the convoys, forces for the interdiction of enemy effort by mining, amphibious forces, forces to counteract the threat of enemy mines, complex communication arrangements, submarines for the tasks that they perform, including the interdiction of enemy submarine effort, and platforms for the launching of guided missiles.

A wise nation or coalition will never place exclusive reliance upon any one concept or weapon; nor can the exercise of sea power be assured by navies lacking versatility. The gun and its associated projectile; the submarine and its torpedoes and missiles; the airplane equipped with bombs and rockets; and combat surface vessels, transports, merchant marine, and amphibious craft—all are needed to produce a balanced and integrated naval force capable of fulfilling the global missions of sea power.

The Principles

A nation that possesses the appropriate elements of sea power can move about on three-fourths of the earth's surface and can affect in some measure man's life in many parts of the globe. It can concentrate power in critical areas; it can shift the strategic center of gravity of wartime operations, and can be troublesome to the ambitions of would-be aggressors. The tools must be kept up to date. Weapon obsolescence could lose the sea campaign before it starts, and we cannot take our technical supremacy for granted. The need is for continuing wise modernization along farseeing lines, to the end that the sea link of free civilization never be broken.

The complexities of sea power render

discernment of its principles difficult indeed. This is true both of the major universal principles and the minor principles of limited application.

It is basic to say that national strategy is not an exclusively military term, for it derives from all of the strengths, the pressures, the weaknesses, the capabilities, and the limitations of the body politic and its relationships with others in time of peace and in war.

It is also proper to conclude that sea power is affected by a nation's financial means, by its manpower in terms of quantity and quality, by its industrial capacity, by its governmental philosophy, by its natural resources, and by the measure of its total power.

We may also conclude that for the foreseeable future the bulk of men and materials that move around the world must be transported by sea.

Sea commerce is of some importance to practically every community throughout the world.

The classical principles of war—the principles of *mobility, surprise, concentration, economy of force*—all have an obvious place in the use of sea power. And, today, there is another principle emerging—that of *dispersal*. These principles have strategic as well as tactical meaning, and the strategic application involves functions and policies beyond the scope of military responsibility.

In the spirit of modern thought it must be borne in mind that the classical principles of war were first enunciated at a time when movement was comparatively sluggish and when logistic support was undertaken at a comparatively leisurely pace. With the compressing of time and space, countermeasures, deterrents, and effective retaliation give new meanings to the classic principles even if they do not cancel them.

After sifting out the lesser rules and beclouding factors, there seem to be but

two great basic principles governing the political-military science of sea power.

First, every nation depending in any degree upon the use of the sea for its economy and security must ensure to itself that measure of sea control which is commensurate with its needs and resources.

Second, control of the sea is not an absolute function in that it only involves the insurance of the degree of use required, and the denial of specified functional use by unfriendly or inimical nations or groups of nations.

These two fundamental principles are reflections of national policy, for sea power cannot be considered in isolation.

With regard to the minor principles of special and selective application it can only be said that each case requires special analysis and the answers must be derived from the existing pertinent factors.

Conclusion

In concluding, it is necessary again to speak of the new look referred to in the introductory remarks. It is the part of wisdom to maintain a continuing new look at the changing affairs of the world, but it is equally important that the ephemeral solutions to ephemeral problems be not hastily interpreted as invalidating principles.

Changes in political alignments and

scientific innovations will always necessitate rapid shifts of power and method as interim measures for offsetting advantage and maintaining balance; this interplay of measure and countermeasure, weapon and counterweapon, will frequently be so radical in character as to momentarily obscure the fundamental underlying principles. In no case or situation is this more true than it is of the sea.

The varying moods of the sea have forced men to many expedients to harness its resources and ward off its dangers, but a few and immutable principles of physics underlie all of the structures that man has built to derive a safe living from the sea. The same relative simplicity underlies the science and art of sea power. Beneath and behind the myriad special problems that confront the peoples of the world in the realm of sea power, there are but a few great fundamentals; and no matter how complicated the special equation may be, its solution depends on an understanding of those fundamentals.

The greatest fundamental of all is that, until and unless the seas dry up, man will be confronted with problems of achieving his own crossing and denying the crossing of his enemy, for nowhere in the future can be discerned any total substitute for the great highways of the seas.

Early in the seventeenth century Sir Walter Raleigh observed that, "Who-soever commands the sea, commands the trade; whosoever commands the trade of the world, commands the riches of the world and consequently the world itself."

That principle is as true today as when it was uttered. Nothing has happened since the era of Sir Walter Raleigh, not even the advent of the airplane, to lessen the importance of sea power and sea trade to our national defense and prosperity.

Admiral William M. Fichteler

AIRBORNE OPERATIONS COMMAND STRUCTURE

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This article is in consonance with current instruction at the Command and General Staff College.—The Editor.

IN PASSING the National Security Act of 1947, Congress intended that definite guidelines be established to permit each service to develop future doctrine so that the three services would be an integrated, efficient team. In many basic areas joint doctrine has been defined but not implemented. Such an area concerns the command structure for theater airborne operations.

The joint service manual, *Joint Action Armed Forces*, approved by all three services, is specific concerning the establishment of joint task forces. It states that a joint task force should be established when the mission to be accomplished has a specific objective, and requires execution of responsibilities involving two or more services on a significant scale, and close integration of effort, but does not require over-all centralized direction of logistics.

It states further that the commander of a joint task force exercises logistical control only to the extent necessary to meet those logistical needs of the subordinate commanders which are essential to the successful accomplishment of his missions, and to meet any request of subordinate commanders for logistical support.

Although the foregoing criteria pertain

to airborne operations, the Air Force has chosen to ignore this doctrine in promulgating its own doctrine on theater airborne operations. Air Force Manual 1-9, *Theater Airlift Operation*, in discussing airborne operations states: "The theater commander exercises his authority through normal command channels by means of directives to his component commanders" and that "no special command or organizational arrangements are required."

On the other hand, Army Field Manual 100-5, *Field Service Regulations, Operations*, states that airborne "operations should be under theater control for over-all planning and supervision with the responsibility for a single operation vested in one commander."

Theater Air Force

All elements of the theater air force will be involved in preparation for the execution of an airborne operation, but the troop carrier element will be the one most closely concerned. Counterair, interdiction, reconnaissance, and close support elements will perform their normal functions with necessary emphasis on support of the airborne operation. Counterair operations will include air defense of the marshalling area, protection of the air column en route to the objective area, and control of the air over the airhead. Interdiction operations will attempt to destroy or delay enemy reinforcements moving toward the airhead before, during, and after the assault. Close air support, in propor-

tion to the enemy ground forces committed, is essential because of the relatively limited organic firepower of the airborne units. Extensive photo, visual, and electronic air reconnaissance of the objective area is vital to success both prior to and throughout the operation.

Elements of the theater air force, other than troop carrier, can support the airborne force while remaining under control of the theater air force commander, since their effort will vary to meet the situational requirements. Planning and control of the tactical type of air support is not as intricate nor does it require the high degree of joint effort and close cooperation that is necessary for the preparation and execution of plans by airborne and troop carrier units participating in an airborne operation.

Let us consider the troop carrier units that support an airborne operation to determine whether or not a special command structure is needed. The mission of the theater troop carrier air forces encompasses four basic tasks: logistical airlift operations, aeromedical evacuation, airborne operations, and special airlift operations. Priorities of these tasks will change as the situation in the theater changes. The theater transportation and allocations board (TAAB) allocates available airlift to these four tasks in accordance with the desires of the theater commander and the needs of the services.

troop carrier aircraft available for other uses in the theater. Unlike the other elements of the theater air force, the number of troop carrier aircraft needed for an airborne operation can be accurately predicted. The number of troop carrier aircraft needed is based on the number of airborne troops participating, types of equipment and tonnage of supplies to be delivered, and the time schedule of the operation. These factors are under the control of the planning headquarters. Reaction of the enemy will, to a large extent, determine the effort required for counterair, interdiction, close support, and reconnaissance. Once the decision has been made to conduct an airborne operation, the question of organization of the force involved must be settled.

Air Force Views

An Air Force member of the theater staff would probably present the following reasons for not establishing a joint force for the operation: "There is no need to form a task force or other special organization to accomplish this mission. The air force organization is flexible and can handle this requirement with its existing organization and the theater commander can control the operation through the theater air force and army commanders. To assign troop carrier wings to a joint force is uneconomical and unnecessarily infringes on the prerogatives of the

The best way to ensure control and unity of command in any airborne operation is to have one over-all commander at troop carrier-airborne force level responsible for the accomplishment of his assigned mission

When the theater commander contemplates undertaking an airborne operation, he considers the effect such an operation will have on the airlift available to perform other tasks in the theater. The airlift required for an airborne operation will considerably reduce the number of

theater air force commander. Instead, issue a directive to the theater army and air force commanders apportioning the tasks and retain control of the airlift where it belongs, at theater level. As in all theater air force operations, maximum advantage of airlift capabilities is realized by em-

ploying the basic principles of centralized control and decentralized execution.

"Give the theater air force commander the job of transporting and supporting the airborne units. He will not only accomplish the task but will do it in such a way that more airlift will be available for other operations.

"The troop carrier and airborne unit commanders to conduct the operation can solve their problems by coordination and cooperation. Continuous liaison and conference will iron out all details prior to the operation. The plans, tactics, and techniques agreed upon by the troop carrier and airborne commanders can then be executed with each responsible for carrying out his part of the over-all plan. Any controversial points that cannot be reconciled by those commanders can be passed to theater air force and theater army headquarters for reconciliation. Coordination between these headquarters will settle most disagreements. Theater headquarters will decide any issues that cannot be settled by subordinate headquarters.

"An analogy can be drawn between the use of theater airlift and railroad operations in the Zone of Interior. When a unit is moved by rail, the unit moving does not take over the railroad but coordinates with the railroad agencies involved. The railroad needs to know the destination, time of move, tonnages involved, type of equipment to be moved, and any special requirements such as sleepers and kitchen cars. The railroads perform the move without relinquishing control of the trains, crews, and control personnel.

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"The Air Force feels it should operate in the same manner keeping the troop carrier units under the control of personnel who know their capabilities and limitations. Give the theater air force commander the job of moving the units and supplies and he will do it in the most efficient manner possible. After all, an airborne operation is merely a complicated freight operation."

Army Views

An Army representative of the theater staff might present the following reasons for establishing a joint force organization:

"The fundamental difference between the Army and Air Force approach to the problem of organization for airborne operations is pointed out in the last remark of the Air Force member of the staff. *The Air Force feels that an airborne operation is a logistical operation* and that schedules can be set up and followed for the movement of troops and supplies to the airhead. *The Army feels that it is a combat operation* and, as such, one commander must have the responsibility, the means to accomplish his assigned mission, and authority to make on-the-scene decisions.

"During the planning stage the Air Force concept of coordination and cooperation would work if sufficient time were available. Points of disagreement between airborne and troop carrier planners could be passed to theater air force and theater army level whose commanders and staffs would have to be briefed in some detail, study the problem, and then coordinate. If no agreement were reached by them, the theater commander would come into the picture to settle the difference. He would hear both sides before making a decision so either he or members of his staff would also have to be briefed in detail. All of this would be time consuming. However, if the planning were being done sufficiently in advance, time might not be critical.

"If the operation were executed as planned and no major differences arose, the air force organizational concept would work. In the execution of any combat operation, however, last minute changes are often necessitated by redistribution of enemy forces, change in weather, new enemy defensive measures, or for other reasons. This is particularly true of airborne operations because the difficulty of obtaining accurate, up-to-date intelligence is greatly increased when we are not in contact with the enemy in the objective area. When time is short, we must get last minute changes to subordinate units in time for them to revise their plans. Under such circumstances, if agreement is not reached at the troop carrier-airborne force level, time would not be available for coordinating at theater air force-army level and, if necessary, passing the problem to the theater commander for decision.

"Once the operation has begun the time factor in getting a decision would be of utmost importance. The German invasion of Crete is an excellent example of the necessity for having one commander responsible for the conduct of an operation. In the spring of 1941 German forces overran Greece, and Crete became an objective of increasing strategic significance. The German command was faced with the problem of attacking an island across a large water barrier in which Great Britain had superior naval forces. Since the Germans had control of the air, an airborne invasion was planned and on 25 April 1941 Hitler approved the plan for the invasion of Crete.

"The German command established a task force composed of airborne forces and supporting naval and tactical air forces *all under a single commander. The desirability of this unity of command in joint operations proved itself during the invasion.*

"The invasion plan assigned the mission

of capturing Crete and holding it until relieved by other forces to the XI Air Corps, commanded by Colonel General Kurt Student. The XI Air Corps consisted of 10 air transport groups (about 600 troop carrier aircraft and 100 gliders), the 7th Airborne Division, the 5th Mountain Division, one regiment of the 6th Mountain Division, and some corps troops—a total strength of about 25,000 troops.

"The assault plan called for the delivery of the 7th Airborne Division in two lifts: the first on the morning of D-day at Maleme Airfield and near Canea; and the second, in the afternoon, at airfields near Retimo and Heraklion. On D plus 1 the mountain troops were to land on the airfields secured by the D-day assault. These four groups, separated by distances varying from 10 to 75 miles, were to link-up as early as possible. A total of about 15,000 troops were to be brought in by parachute, glider, or air-landed; an additional 7,000 troops in a sea-borne followup were to land at north coast ports on D plus 1.

"The Luftwaffe Fourth Air Force, which had over-all command of the operation, estimated that the assault would be opposed by 5,000 combat troops. This proved to be a gross underestimate. Also, German efforts in aerial photography and counterintelligence measures to deny information to the British of the time, place, and nature of the operation were inadequate. This inadequate intelligence and loss of surprise cost the Germans dearly.

"Allied forces defending Crete, under the command of General Bernard Freyberg, consisted of the 27,500 British and Imperial troops plus 14,000 Greeks; the majority of these troops had been hastily evacuated from Greece and suffered from a pitiful lack of armament and supplies. British intelligence had, with little difficulty, determined the imminence of the airborne assault and great efforts were made to prepare defenses which would de-

feat the anticipated airborne invasion. These included establishment of forces in four self-contained groups, one each at Maleme, Suda Bay (near Canea), Retimo, and Heraklion.

"At 0800, 20 May 1941 in the wake of a 3-week air effort which gained complete air supremacy, the Germans initiated the assault at Maleme and Canea but many of the landings were on top of camouflaged, dug in defending troops, resulting in terrific casualties for the Germans. However, one glider force landed in a protected dry river bed near Maleme and obtained considerable success. The afternoon lift, assaulting airfields at Retimo and Heraklion, encountered even more severe opposition. By nightfall on D-day not a single airfield was in German hands.

"Meanwhile the seaborne followup echelon was intercepted by a British naval task force; most of the German transports were sunk; and all plans for seaborne reinforcement were abandoned. In these engagements the Luftwaffe was committed to an all-out attack on the British Fleet, forcing it to withdraw from the Aegean Sea with heavy losses.

"General Student decided to throw all of the weight of the attack into the Maleme area, and on D plus 1 additional parachutists were landed there. Although great losses were suffered, a foothold was secured at Maleme Airfield. By 1600 on D plus 1 the 5th Mountain Division started landing on the airfield, at times under direct artillery and machinegun fire. This precarious airhead was exploited and, after bitter fighting, link-up was established with the last pocket at Heraklion on 30 May or D plus 10.

"The result might have been entirely different had the airborne force commander and the troop carrier commander been working on a cooperating basis. Perhaps the decision to reinforce one point, Maleme Airfield, instead of all four, as originally planned, could have been

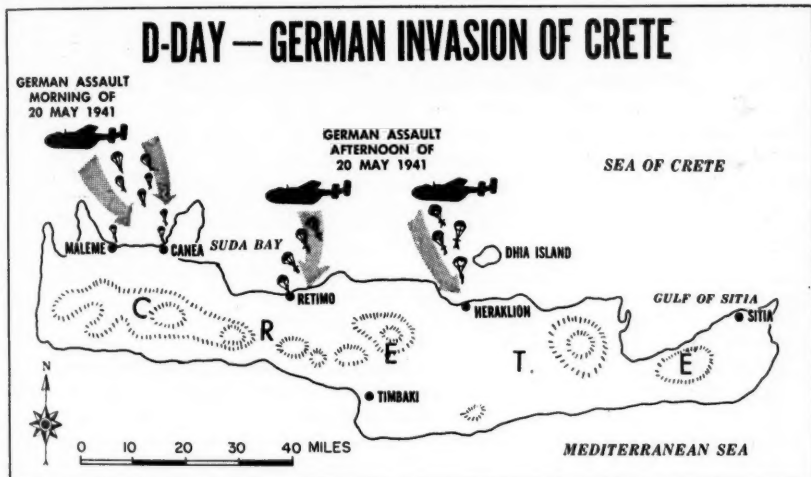
reached since that area promised the most success. The decision to begin using the airfield while it was still under direct artillery and machinegun fire would have been more difficult to reach had there been two commanders, neither of whom had over-all control of the operation. The ground commander with no direct responsibility for the aircraft or crews involved would have wanted to reinforce his ground units. The troop carrier commander would have objected to landing his planes while the airfield was still under direct fire. In the light of their own service interests and responsibilities, both could have presented valid reasons to back their views. It is to be expected that the experienced airman will think primarily in terms of the contribution the troop carrier units will make to the over-all theater effort, not only to the operation at hand. To land on a field still under fire would entail the loss of a considerable number of aircraft. The airborne commander, also thinking in terms of the theater effort as well as the immediate mission, would insist on reinforcement to eliminate the possible loss of his force on Crete. The desirability to avoid controversy and the necessity for an early decision may lead to compromise, but that does not make compromise the best solution. Indeed, compromise in military affairs may be the worst possible solution.

"*The Germans made some mistakes in their operation to seize Crete, but they did not make the fundamental error of splitting responsibility at the operational level. The time involved in getting a decision, had there been two commanders instead of one, would have been considerable. Coordination at troop carrier-airborne force level would take time. If no decision were reached, encoding, transmission, and decoding messages to theater army and theater air force, briefings and coordination at that level, and forwarding the problem to theater headquarters for a*

decision would consume a prohibitive amount of time. A conservative estimate of the time required to go through these steps would be from 8 to 10 hours. Even after a decision was reached coordination would be required at the operational level to implement it. A delay of 8 hours in reinforcing the elements in Crete might well have been disastrous. All of the parachutists available had been committed and

mand that clearly assigns responsibility and authority to unite the various efforts to attain the over-all objective. The Army's principle of war corresponding to control is unity of command which obtains unity of effort by the coordinated action of all forces toward a common goal. Both the Air Force and the Army principle include cooperation.

From these definitions it follows that



additional reinforcements had to be air-landed. The decision to use the Maleme Airfield before it was adequately cleared was a difficult one and would have been even more difficult and time consuming if the decision of the next higher headquarters had been required.

"Similar situations might be faced in any joint operation. Therefore, the Army feels it is imperative that there be one commander at the operational level."

Principles of War

Although they interpret it differently, both the Army and the Air Force use a principle of war covering the aspects of control. Control, according to the Air Force, consists of an organization of com-

mand that clearly assigns responsibility and authority to unite the various efforts to attain the over-all objective. The Army's principle of war corresponding to control is unity of command which obtains unity of effort by the coordinated action of all forces toward a common goal. Both the Air Force and the Army principle include cooperation. From these definitions it follows that the best way to ensure control and unity of command in any airborne operation is to have one over-all commander at the troop carrier-airborne force level. This single commander would then be responsible for the accomplishment of his assigned mission and would have the means and necessary authority to carry it out. Therefore, the soundest organization for an airborne operation is to have one commander, appointed by the theater commander, over a force composed of airborne units and troop carrier units. He should have a staff composed of Army and Air Force officers, and the Navy when applicable, and be responsible directly to the theater commander. All the units that will participate in the operation should

be assigned sufficiently in advance to ensure joint planning and training.

Conclusions

The activation of the First Allied Airborne Army in 1944 placed all airborne and troop carrier units under a single commander for the first time. This made possible a coordination in planning and execution not possible before or since. The two largest airborne operations of World War II, *Market-Garden* in Holland and *Varsity* crossing the Rhine River, were conducted by this headquarters and this concept of organization won almost universal approval. In spite of this no such organization has been formed to conduct maneuvers in the United States since World War II or for operations in Korea.

During World War II this organization proved itself better than having two separate headquarters and it would seem logical that today it is still appropriate and should be utilized.

The Air Force has approved the task force concept in approving the *Joint Action Armed Forces* manual but it has chosen to disregard this agreement in promulgating its own doctrine on airborne operations.

The time to correct this situation is now, not after a war starts. Joint airborne operations in future maneuvers should be set up on a joint force basis under one commander to give training and experience to both troop carrier and airborne staff officers and commanders so that if the time comes we are ready.

It [the Army] must . . . be able to transport its troops by air—thousands of miles if necessary—in time to dominate a dangerous situation in any area before it gets out of hand. It must, likewise, be able to move its troops into actual combat, to shift them within the battle zone, and to supply them—all by means of air transport and fast, lightly armored ground vehicles such as those which are now replacing a major segment of traditional ground transportation. The introduction of nuclear weapons to the battlefield has posed a whole host of new and critical problems. There will be no battlelines in the future as many of us have known them in the past. Rather, there will be deep battle areas.

The Army has a vital need for light aircraft of its own—both fixed-wing planes and helicopters—to furnish direct battlefield support of the combat operations of a field army. Specifically, this means aircraft for command, observation, artillery adjustment, and resupply; for the evacuation of the wounded, for the rapid movement of patrols, outposts, and other small bodies of troops, and for similar purposes.

The Army does not seek to create an Army Air Corps duplicating functions of the Air Force. The Army's need is for relatively slow, low-flying planes, geared to the environment of the infantryman—just the opposite of the fast, high-flying aircraft of the Air Force. There is no conflict in this area. Army aviation is as much an integral part of the ground forces as the artillery. It is an essential element of the battlefield mobility of our troops, and I am sure that you will readily agree that this type of aviation must be under the full and immediate control, and subject to the direct command, of the commander responsible for ground operations.

Secretary of the Army Wilber M. Brucker

The Military Implications of SEATO

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The views expressed in this article are the author's and are not necessarily those of the Department of the Army or the Command and General Staff College.—The Editor.

"THE shortest route to Paris is through Southeast and South Asia, and the Middle East." This statement has been attributed to Lenin. Perhaps in his concept for Communist domination of the world Lenin considered these areas as presenting a fertile field for the torch of "red fire" which he hoped would then spread rapidly to the Mediterranean countries and eventually engulf the entire Eurasian Continent and Africa. This would isolate the Western Hemisphere and, after consolidation of the initial Communist objective, leave this hemisphere open to attack.

It would appear that the conquest of Asia is the immediate goal of the Communists, certainly of the Chinese Communists. Mao Tse-tung, in a memorandum outlining a new program for world revolution, indicated that "... the time has come to look upon Asia as our immediate goal." He considered that under the present circumstances, any vigorous action in Europe such as internal revolution, effective infiltration, or intimidation into inaction or submission would currently be impossible. However, he further consid-

ered that such tactics in Asia would, for the foreseeable future, yield an abundant harvest. (See Figure 1.)

In the implementation of Mao Tse-tung's concept, the spearhead of communism has been provided with additional impetus in Southeast Asia (Indochina) by the continuation of colonial policies and the suppression of the Nationalist desires of the indigenous peoples of this area. With no colonial aspirations but with an active interest in obtaining world peace and stemming the tide of world communism, the United States decided to take action to meet the threat of aggression in Southeast Asia in accordance with President Eisenhower's peace address of 16 April 1953. The President, in this address, called for "united action" in this area and a basis for such action had already been established by the negotiation of security treaties with Australia, New Zealand, and the Philippines, each of which called for "the development of a more comprehensive system of regional security in the Pacific."

Unified Position Needed

The outcome of the Geneva Conference during the summer of 1954, with reference to Indochina, confirmed the need for a unified position on the part of the United States and her allies as pertained to Southeast Asia. Therefore, Australia, France, New Zealand, Pakistan, the Phil-

Although SEATO is not a panacea for all the ills of the area, it complements other United States treaties in contiguous areas and provides for coordinated planning in conjunction with other pact countries

ippines, Thailand, the United Kingdom, and the United States met at Manila, in the Republic of the Philippines, in September 1954 in order to develop such a position. Negotiations were conducted as full and equal partners and a treaty known as the "Southeast Asia Collective Defense Treaty," Manila (SEATO) Pact, was signed on 8 September 1954. The treaty entered into force on 19 February 1955, following the deposit of the instruments of ratification with the Government of the Republic of the Philippines.

The Secretary of State, Mr. John Foster Dulles, has stated that:

The United States was in a special position at Manila, because it was the only one of the signatories which did not have territorial interests in the treaty area. For the others, the pact was not only an anti-Communist pact but also a regional pact. Therefore, it dealt with any and all acts of aggression which might disturb the peace of the area.

In elaborating further, Mr. Dulles considered that any significant expansion of the Communist world would be a danger to the United States because international communism thinks in terms of ultimately using its power position against the United States. In a broad interpretation

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of the words of President Monroe in proclaiming his doctrine, Mr. Dulles further considered that Communist armed aggression in Southeast Asia would endanger our peace and security and call for counteraction on our part.

The treaty area is defined as the territory of the member states in Southeast Asia and the southwestern Pacific. (See Figure 2.) However, a protocol to the treaty provides for the extension of treaty benefits to Laos, Cambodia, and that portion of Vietnam which is not Communist controlled. These nations are not members of SEATO because the armistice provisions of the Geneva Accords of July 1954 raised a question in the minds of some of the parties to the accords as to whether these former members of the Associated States in Indochina could actually join such a pact. This was primarily due to the fact that the armistice terms for the cessation of hostilities in Indochina are extremely complicated and somewhat ambiguous with respect to these matters; however, Cambodia, Laos, and Vietnam welcomed the mantle of protection that the treaty provided to them.

SEATO has three main purposes: first, defense against open armed aggression; second, defense against subversion; and third, the improvement of economic and social conditions.

In considering the military implications of the pact, Article IV contains some of the most important provisions of the treaty. It sets forth any measures by which the parties agree to take action against armed aggression and against the danger of subversion and indirect aggression.

Under paragraph 1 of Article IV, each of the parties recognizes that:

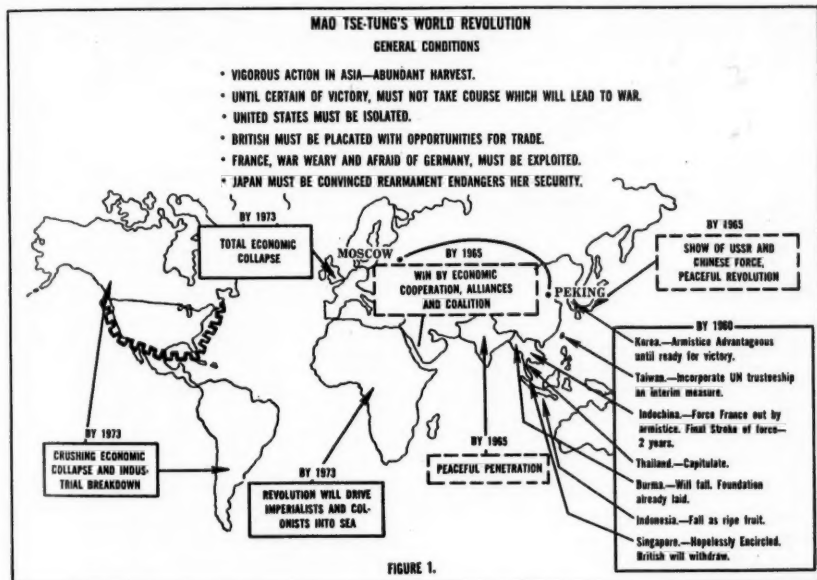
... aggression by means of armed attack in the treaty area against any of the parties or against any state or territory which the parties by unanimous agreement may hereafter designate would en-

danger its own peace and safety, and agrees that it will in that event act to meet the common danger in accordance with its constitutional processes.

This paragraph is based upon the Monroe Doctrine principle and follows the pattern of other United States security treaties in the Pacific. Further, the agreement of each of the parties to act to meet the common danger "in accordance with

ened by other than armed attack. This paragraph contains no obligation beyond consultation, but it is considered that the primary purpose of consultation is to agree on measures to be taken for the common defense.

In order to implement properly the various provisions of the treaty, Article V establishes a council in which each party is to be represented. The council



its constitutional processes" leaves to the judgment of each country the type of action to be taken in the event an armed attack occurs.

The danger from subversion and indirect aggression is dealt with in paragraph 2 of Article IV which meets this difficult problem more explicitly than any other security treaty to which the United States has ever been a signatory—it provides for immediate consultation by the parties whenever any party believes that the integrity of the treaty area is threat-

provides for consultation with regard to military and other planning as the changing situation in the treaty area may require.

The first meeting of the SEATO Council opened in Bangkok, Thailand, on 23 February 1955. During this meeting each of the council members agreed, with the approval of their respective governments, *inter alia*, to designate a military advisor. The mission of these military advisors is to make recommendations to the council on military cooperation under the treaty.

They meet periodically as required, formulate their own rules of procedure, and make any necessary organizational arrangements.

The initial meeting of the military advisors was held in Bangkok, Thailand, on 24-25 February 1955 with Admiral Felix B. Stump, Jr., the United States Com-

Baguio, Republic of the Philippines, in April and May 1955 and developed recommendations on certain plans and courses of action for the consideration of the military advisors.

The military advisors considered and forwarded the recommendations of the staff planners, together with the advisors'

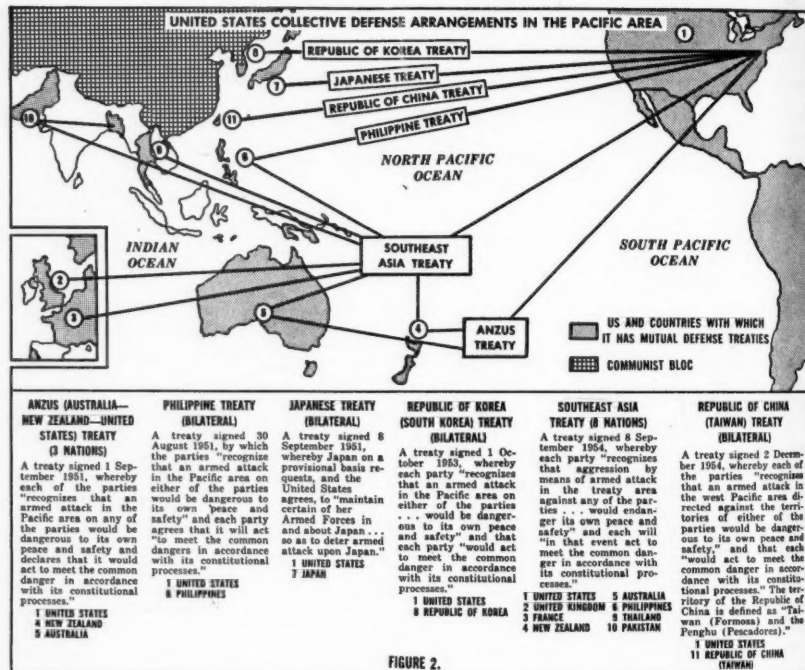


FIGURE 2.

mander in Chief, Pacific, representing the United States. The magnitude of the planning tasks became obvious immediately at this initial meeting and action was initiated to isolate the major problems pertaining to pact planning for the area. When this was accomplished, planning tasks were then referred for development to a staff planning group of the military advisors.

After detailed consideration of the problems involved, the staff planners met at

comments, to their respective chiefs of staff for approval. The resulting comments of the chiefs of staff on the staff planners' recommendations were then considered jointly at a meeting of the military advisors held in Bangkok, Thailand, during the period 6-8 July 1955. It is considered that this procedure will be used for future meetings of the staff planners and military advisors (the most recent being at Pearl Harbor during the period 1-15 November 1955) thus ensuring an orderly

progression of coordinated military planning (joint plans will not be developed) in which the problems and requirements of each member nation, as well as the entire area, will receive full and careful consideration.

The controlling Communist force in Asia is the Chinese Communist Party with the Communist military strength in the area being provided primarily by the Chinese Communists. As a military power they provide the one probable force of aggression which must be considered a current threat to the countries of South and Southeast Asia who are now struggling to maintain their independence.

For military purposes the Chinese Communist front should be regarded as an entirety because if the Chinese Communists engage in open armed aggression, it would mean that they have decided on general war in Asia. In this event they would have to take into account, in addition to SEATO and its forces, the mutual defense treaties of the United States with the Republic of Korea and the Republic of China, and the forces maintained under these treaties. Thus general war would confront the Chinese Communists with operations which would not be mutually supporting and would make difficult the rapid concentration of force on their part due to their inadequate means of transportation.

No material change in the military planning of the United States is contemplated by United States participation in SEATO. It is considered that reliance shall be placed for military defense of the pact area upon mobile allied power which can strike an aggressor, wherever the occasion may demand. That capacity should be sufficient to deter aggression and obviate the necessity for a buildup of large static forces at all points. Nevertheless, it was considered at the November staff planners' meeting at Pearl Harbor that each member nation must be continuously alert not only to its own national security and ob-

jectives, but to the requirements necessary to maintain the security of the treaty area. It was further considered that these requirements could be developed only by realistic, aggressive SEATO planning.

At present, United States plans call for maintaining at all times powerful naval and air forces in the western Pacific capable of striking at any aggressor by means and at places of our choosing. The responsibilities of the United States are so vast and farflung that it is considered it would serve all interests best not by earmarking forces for particular areas of the Far East, but by developing the deterrent of mobile striking power plus strategically placed reserves. However, other treaty members may deem it desirable to make their contribution toward strengthening the defense of the area by specific force commitments.

Conclusions

SEATO nations possess together adequate military power for employment in the pact area. The United States in particular has ground, sea, and air forces now equipped with new and powerful weapons of precision which, if employed in support of pact operations in the event of overt Communist aggression, would ensure the complete destruction of military targets without endangering unrelated civilian centers. Therefore, the SEATO Council, after analyzing the military factors pertaining to the pact area, concluded at their February meeting that the available military powered offered hope of deterring open armed aggression against the pact area.

It is desired to emphasize that SEATO: is not a panacea for all the ills of the area; complements other United States treaties in contiguous areas; is consistent with the provisions of the United Nations Charter; varies from NATO in that the United States is not committed to stationing forces in the area; and provides for coordinated rather than joint planning in conjunction with other pact countries.

Re-examine the Principles of War

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The views expressed in this article are the author's and are not necessarily those of the Department of the Army or the Command and General Staff College.—The Editor.

IT HAS become commonplace to introduce any discussion of the principles of war by saying that weapons and tactics change, but the principles of war do not change. The principles of war are eternal and immutable. They seem to have achieved the status of a dogmatic creed, to be challenged only at the risk of raising accusations of heresy. As such they have been reduced to a catechism to be accepted on faith by all young officers. By so doing we tend to stereotype the application of the principles of war and thus repress the ability to apply bold imagination to the interpretation of these principles.

It is undeniable that the principles of war—largely the principles of Clausewitz—have a great deal of truth in them. Some of them seem obvious truisms, but others are open to serious question. Not only has airborne and atomic warfare made some of those concepts obsolete, but many exceptions are to be found to them throughout the history of warfare. Again, in the ordinary classroom presentation of the principles of war, examples are marshalled to illustrate how battles have been won with the correct application of the stated principles, and lost through the failure to apply them. Exceptions are carefully ignored. And the exceptions are not the kind that prove the rule, but sometimes disprove it. Unfortunately officers

indoctrinated and imbued with such unexceptionable principles are likely to fail to search for the exceptions which in a particular situation may be decisive.

While it would be agreed that military operations must have an objective, the nature of that objective must be considered carefully. In explanation of this first principle of war, we are told that:

The ultimate objective of all military operations is the destruction of the enemy's armed forces and his will to fight.

Objective

The implication is that the primary objective is the enemy armed forces. Yet at the end of World War II we saw Japan surrender while a Japanese force of 2 million men and 9,000 aircraft remained in being to defend the home islands.

American doctrine has tended to conform with what Liddell Hart calls the "Napoleonic fallacy" that wars are to be won only by destroying the enemy's army, not by occupying his capital or other major cities. Our objective is the enemy's army; we are not interested in real estate. Nevertheless the emotional and economic attachments of a nation for a particular city can be so great that its loss to the enemy means the loss of the war. This has been true of Paris—whenever Paris has fallen France has fallen. When Napoleon left Paris lightly guarded in 1814 in order to pursue the enemy in eastern France, the allies made straight for Paris, and a week after they entered the capital Napoleon abdicated. Throughout World War I it generally was assumed that the German capture of Paris would mean the loss

of the war for the Allies. In World War II the French sued for an armistice 2 days after the fall of their capital.

It is true that victory may be won by destroying the enemy's armed forces. But it also is nonetheless true that sometimes victory may be won without destroying those forces. Many Americans have come to equate victory with destruction, and they hold to the destructive principle of unconditional surrender. Again, we are told that "in war there is no substitute for victory," apparently meaning complete destruction of the enemy. Perhaps it is enough for a soldier, confining himself strictly to military considerations, to hold victory as his objective. When he ascends to the place to urge high national policies, however, he must look beyond victory to the more basic objectives which brought his nation into war. The ultimate objective of war is not simply victory, but the well-being of the nation. The objective for the nation is not the destruction of the enemy, but the protection of its own security and the restoration of justice, freedom, and peace. Failure to look beyond the immediate destruction of the enemy to the political consequences is the reason Americans have found themselves winning the war, and then losing the peace. Was victory ever more complete than in World War II? Did it bring security and peace?

Because the enemy forces remained intact, many Americans have expressed the

South Korea. That objective was achieved. Holding ourselves to the original objective, clearly the United States and her United Nations allies won a victory in Korea. In war a stalemate is a victory for the defensive.

"The ultimate objective of all military operations" might better be stated as being the destruction of the enemy's capability or his will to fight.

Simplicity

Simplicity is a principle which may offer some value most of the time, but even it is not to be accepted unquestioningly for all occasions. If everyone had insisted on following the rule of simplicity, there probably would have been no airborne operations during World War II. It may be argued that airborne attacks made no decisive contributions to American battle victories. But if they did contribute something to the successes in Sicily, Normandy, Holland, or Corregidor, it was not because they offered the simplest of the possible courses of action. On the contrary they were highly complex undertakings.

Again, the simple plan may be too obvious to the enemy. It was "impossible" for the Japanese to move all the way down the Malay Peninsula to Singapore—so of course that is the very route they used.

It is said that the final test of a plan is its execution. And so it is for that particular plan, but its success does not rule

No idea should be too fantastic or unorthodox to be rejected without a fair hearing. Bold imagination should be an underlying principle for the interpretation and the application of all of the principles of war

opinion that we lost the conflict in Korea. If victory meant the conquest of all North Korea and the destruction of the Communist Chinese armies, then truly it was not attained. But what objective did the United States have in Korea? It was to stop the Communist aggression against

out all the alternative plans which might have been even more successful. Too frequently we tend to justify our military doctrine with the unassailable statement, "Well, we won the war didn't we?" when it is quite conceivable that with members and industrial resources far surpassing

those of the Allies, the Germans might have been fully as successful with their doctrines of airpower, for instance, as were the British and Americans with theirs.

Unity of Command

In football, simple offensive systems frequently have been successful. But with the right personnel, highly complex offensive systems have at times been spectacularly successful. So may it be at times too with offensive systems in battle.

Unity of command would appear to be one of those truisms obvious to everyone were it not violated with such frequency. In spite of unified commands in all the overseas theaters, we seem unable to develop an effective unified command for the defense of the United States. Since World War II the Air Force has been moving away from the principle of unity of command whenever it means assigning combat elements to the control of an officer of another service. There still is no unified command over aircraft and paratroops in airborne operations. Apparently the Air Force has come to accept the idea of unity of command for air defense, with Army antiaircraft units under an Air Force commander, but air officers show great reluctance to see tactical air units put under command of the ground forces commander whom they are supposed to be helping with close support missions.

Even to this principle there may be justifiable exceptions in cases where there

is no officer present having knowledge of the capabilities and limitations of elements of services other than his own which are to cooperate in some particular situation. In spite of its usual weaknesses, cooperation may be more effective sometimes than unified command. Each commander of cooperating forces may feel a certain sense of responsibility of which he would be relieved were the sole responsibility placed on a single pair of shoulders.

The Offensive

Perhaps the most deeply imbued of all principles of war, at least as far as American officers are concerned, is the principle of the offensive. It is said that a decision can be won only through attack. The only excuse for assuming the defensive:

... is to gain time pending the development of more favorable conditions for undertaking the offensive, or to economize forces on one front for the purpose of concentrating superior forces for a decisive action elsewhere.

To imply that defensive actions never have been decisive, but at best have only set the stage for decisive counteroffensives, ignores the record of history. Of the *Fifteen Decisive Battles of the World* on which Sir Edward Creasy wrote, at least 10 were defensive victories in their strategic or tactical aspects, or in both. While it is true that there were local attacks on the part of the victors, in varying degrees, at Marathon, at the defeat of the Athenians at Syracuse, the defeat of Hasdrubal at the Metaurus, the defeat of Varus and the Romans by the Germans, the checking of Attila and the Huns by Romans and Visigoths at Chalons, in Peter the Great's victory over Charles XII of Sweden at Pultowa, and at Saratoga, each of those engagements represented a decisive repulse of an invading enemy. After the defeat of the Athenians, the Syracusans had no

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thought of launching an invasion of Athens to make the victory decisive. Peter did not have to invade Sweden to save his country from invasion after Pultowa. Charles Martel gained a decisive victory when his defense stopped the Moors at Tours; the defeat of the Spanish Armada was essentially a decisive victory for the defense; and so too was the successful defense of the French Revolutionary Army against the Prussians at Valmy. Gettysburg also was a decisive defensive victory (of course it is true that it took offensive action to bring the Civil War to a successful termination for the North).

"Spirit"

The "offensive spirit" virtually ruined the French Army in World War I. One of the advantages of the offensive is said to be the higher morale which it inspires in the troops. After the succession of costly, useless French assaults against the German defenses in 1915-17, however, the offensive inspired mutiny in the troops rather than spirit. Indeed, a command in which the offensive idea has been oversold may actually be inviting low morale on the part of its soldiers when forced to go into a "temporary" defensive situation. The lowering of morale may come, not simply because the unit no longer is advancing and the doughboy may stay in the same place for a few days, but because men have been convinced that victory and success can come only with the offensive; therefore, the assumption of the defensive must mean that some catastrophe is impending or at least that victory and success have been postponed. This feeling was evident among men of the Third Army when they had to revert to the defensive in Lorraine in September 1944.

Moreover an enemy known to believe that only attack can win puts himself at a disadvantage against a wily and more broadminded foe who will then lay his own plans accordingly.

Mass

The principle of mass requires further consideration. Again it is essential to leave the door open for many exceptions. Unquestioning acceptance of this principle may be worse than having no principle at all. Even in discussing old, traditional ways of warfare some care is necessary on this point.

It may be fatal, for instance, to concentrate *inferior forces* before a superior enemy. Washington was anxious to avoid the concentration of all the small American forces in Charleston, South Carolina, when the British threatened that key city in 1780 lest the loss of the place might involve the loss of all his forces. The concentration of forces not strong enough to achieve the intended purpose may be fatal.

In other situations it is necessary to avoid concentrations of troops in places where supply and transportation facilities will be overtaxed. In 1758 General James Abercrombie delayed his attack against Canada by way of Lake George and Lake Champlain until 20,000 colonial troops could be added to his force at Fort Edward. Further delays were necessary to get up the supplies, horses, wagons, and boats necessary to transport the supplies for supporting this bigger force. He thus lost the advantage of the earlier spring which would have permitted him to be moving northward while the French remained bound in Montreal. In this case he might have had greater success had he been more determined to move quickly, and less concerned about massing his forces.

The winters when Washington's miserable army suffered most for want of provisions and clothing were those when it was concentrated at Valley Forge and then at Morristown. The situation was quite different in the winter of 1778-79 when the infantry was divided between camps at Danbury, Connecticut, and West Point, New York, and the cavalry was spread out all the way from Durham, Connecticut, to

Winchester, Virginia, and Middlebrook, New Jersey, with the size of each garrison determined at least in part by the availability of supplies.

It frequently may be the case too that scarcity of supply and transportation facilities will make advisable a division of forces for offensive operations. In Amherst's masterful campaign against Montreal in 1760, British forces moved by three widely separated routes—down the Saint Lawrence from Lake Ontario, northward by way of Lake Champlain, and up the Saint Lawrence from Quebec. Such a division of forces permitted the advance on Montreal to begin without waiting for a concentration of all the forces, it made use of widely separated supply and transportation facilities without overtaxing any of them, and it cut off any French retreat to the west.

In modern warfare the principle of mass becomes more questionable. The importance of mass in parachute drops had been stressed in plans for airborne operations during World War II. However, high winds and other factors caused plans to go awry over Sicily for the 82d Airborne Division and paratroopers were scattered as much as 60 miles apart, all the way from Noto to Licata. About one-eighth of the parachute force landed in front of the 1st Division, as planned. Nevertheless most of the assigned missions were accomplished, and much unplanned for assistance was given in front of the 45th Division and the British and Canadian units as well. Allied officers were bitterly disappointed with the operation. Germans were tremendously impressed by it. It is possible that the scattered drop was more effective in disrupting the enemy than would have been a drop massed according to plan.

Again in Normandy parachute units were scattered over 40 miles up and down the Cotentin Peninsula, but they were effective. German counterattack plans for moving against concentrations of para-

troopers were of little use when few concentrations could be found. Commanders preparing to rush out in one direction were distracted by firing of scattered paratroopers in another direction. In some situations it is conceivable that an airborne division deliberately scattered all over an enemy's communication system might accomplish far more than a massed division dropped directly into a battle position.

When we come to a consideration of atom bombs, the principle of mass begins to sound completely out of place. On one hand it seems to make little sense to speak of concentrating atom bombs. If an enemy had 20 hydrogen bombs at his disposal for an attack against the United States, would his most effective use of them be to drop them all in the area New York—New Jersey—Philadelphia? Or, might it not be much more effective to scatter them all across the country, one each at such places as Boston, New York, Philadelphia, Pittsburgh, Cleveland, Detroit, Birmingham, Chattanooga, Cincinnati, Indianapolis, Chicago, Sault Sainte Marie, Saint Louis, Kansas City, Minneapolis, Denver, Seattle, San Francisco, Los Angeles, and San Diego? On the other hand the prospect of facing atomic artillery and guided missiles and bombs makes it more imperative than ever that military forces and military facilities be widely dispersed.

Economy of Force

Economy of force "is a corollary to the principle of mass." This is a principle which needs a new emphasis. It is a necessary principle, we are told, in order to permit the concentration of forces at another place. The principle of economy of force is one which should be extended to the conduct of war itself. It should be extended to include Saint Augustine's principle that only so much force must be applied as is required to attain the objective. Such extravagances as the dropping of 50 times as many bombs on the Cologne area in

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December 1944 as was necessary to do the job of knocking out the transportation system (according to the United States Strategic Bombing Survey) seem inexcusable. It is difficult to find justification for the utter destruction of St. Lô on the night of 6-7 June 1944. Presumably as a part of their effort to isolate the Normandy battlefield, American airmen bombed St. Lô heavily at 2000, 6 June, then more devastatingly shortly after 2400. But that was not enough. They returned at 0300 and again at 0500 to bomb this already virtually destroyed town which had no war industries, was no key transportation center, and from which most of the German troops had withdrawn.

Many people seem to operate on the principle that anything which hurts the enemy or brings destruction upon him is to be encouraged. Again, victory is equated with total destruction of the enemy. Any destruction beyond that which contributes directly to the objective is unwise, for it only makes worse the postwar problems which will have to be met; it is inexpedient for it tends to arouse resentment on the part of allies and defiance on the part of enemies; and it is immoral because it claims the lives and the way of living of people beyond even what might be justified in terms of military necessity, or certainly beyond what should be the basic objective of restoring justice and peace.

Surprise

Surprise is another of those principles which seems to be almost a universal truism, but even here exceptions must be admitted. There are times when it may be an advantage to advertise one's strength, and even one's intentions. When Henry Bouquet marched into the Ohio country in 1764 to put down Pontiac's uprising, he was able to accomplish his mission without a battle, simply by marching a sizable force of 1,500 men boldly through the heart of the enemy territory, and then drawing his troops up in full display be-

fore treaty negotiations. The Allied practice later in World War II of dropping warning leaflets on cities before bombing served to demonstrate the complete Allied superiority. Warning leaflets dropped on St. Lô, where there were no flak batteries, and when the German Air Force was nearly impotent, might have saved the lives of French civilians with very little risk to the airmen.

Security

Certainly few would question the necessity for security so that one's own forces will not be subject to surprise. Here the problem is not to point out exceptions, but to improve the application of the principle.

Following what has come to be traditional American intelligence doctrine, the explanatory statement of this principle says:

Adequate security against surprise requires a correct estimate of enemy capabilities. . . .

Time and again we are told in our intelligence schools, "We are interested in determining the enemy's capabilities; we are not mindreaders, and we do not want to go off on a tangent of trying to figure out his intentions." Yes, capabilities are important, but is that enough to give us security? Of what use is intelligence if we cannot estimate the enemy's intention? The failures of American intelligence in recent years have been spectacular. We might know very well that the Japanese are *capable* of launching an attack anywhere in the Pacific, but what good does that do if we cannot find out that they are *intending* to attack Pearl Harbor? All kinds of intelligence reports are marshalled to show us that it had been correctly estimated that the Germans were *capable* of launching an offensive through the Ardennes in December 1945, but what good did they do us when we were unable to find out the German intentions? On the other hand the Germans knew that

the Allies were capable of invading the European coast anywhere from the Bay of Biscay to the North Sea, but they could not defend equally everywhere, so what good did it do them? Everyone knew that the North Koreans were *capable* of attacking South Korea in 1950, but we had not learned their *intentions* and we were surprised. Everyone knew too that the Chinese were *capable* of attacking across the Yalu River in November 1950, but we did not learn their intentions and we were surprised again.

Conclusion

The principles of war, of course, are still sound, but it is doubtful whether they should be presented as unexceptionable principles, unalterable maxims, and established axioms. Exceptions, modifications, or improvements may be found for every one of them, and they should be admitted

and discussed frankly. To teach young officers that there are universal rules may be a disservice to that flexibility in thinking which is essential for meeting new situations. An officer student's exercise should never be marked down purely on the ground that it departs from the normal application of a principle of war. If he can demonstrate reasonably that his solution will contribute more toward the basic objective although it deviates from the traditional principle of war, then his paper should be marked upward, not downward. *The underlying principle that illuminates the principles of war should be bold imagination.* No idea should be too fantastic or too unorthodox to be rejected without a fair hearing. Any military instruction which curbs the development of bold imagination should be modified. That includes presentations of the principles of war.

THE MISSION OF THE MILITARY REVIEW

The MILITARY REVIEW has the mission of disseminating modern military thought and current Army doctrine concerning command and staff procedures of the division and higher echelons and to provide a forum for articles which stimulate military thinking. Authors, civilian and military alike, are encouraged to submit materials which will assist in the fulfillment of this mission.

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WHO TAKES OVER?

Lieutenant Colonel Clarence C. DeReus, *Infantry*
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This article is in consonance with current instruction at the Command and General Staff College.—The Editor.

ONE would suppose from the volumes of material published today that every aspect of military operations had been peered at, mentally evaluated, and revamped in light of new developments. If this were true it would be most commendable, yet at least one aspect, and a most vital one, has been untouched except from a rather "platitudinous" approach. That significant aspect is: *Who takes command when disaster strikes the commander?*

In a very scholarly examination of problems concerning future military operations, we gaze in ever-increasing depth into the crystal ball. We struggle to envisage concepts of operation, equipment apropos to the occasion, and organizations compatible with such concepts. Further, we have studied the myriad problems relating to providing replacements and now recognize that replacements must be provided to combat units both as units and individuals. But the key ingredient of military operations today, tomorrow, or in the next century is the commander. We must always have one, yet no one has done anything to assure that such will always be the case. At the expense of being sardonic I venture to say that I suspect an alternate mimeograph machine has been tucked into the tables of organization and equipment but to my knowledge no pro-

vision for an alternate command and staff group has been recorded.

In this age of technological advance the command post at any echelon becomes an active center of control. From it flows the "life blood" of the operation in the form of orders, reports, guidance, encouragement, and admonition. There are those who, because of the last item, will in a moment of haste say "we can do without them" but will quickly retract it after a little thought. In any event, the day has approached when the command post falls into the category of things that "now you see, now you don't."

The flow of information and orders into and out of this active center creates a magnetic field that draws attention and in many instances weapons. One atomic weapon can cut a large force loose without common control and direction. Unless proper and anticipatory planning has been accomplished, this large force can become an aimless, wandering mob before control can be reinstated. Even after control has been reinstated it can be meaningless unless the commander has been aware of missions, plans, and the personality of the command to which he has suddenly fallen heir.

It is obvious with first thought that to assimilate all of this would require some advance considerations on the part of the commander. It would also require a staff who at least have a speaking acquaintance one with another. This is all true unless development progresses to the point where

With the possibility of destruction of headquarters units, prior plans must be made for the replacement of entire headquarters to ensure operational continuity and adequate command control of subordinate units

UNIVAC (mechanical brain) has built into it the frailties and reasoning power of human beings.

Alternate Command Group

Having painted the problem, little recourse is available except to propose a solution. This solution must establish an alternate command group, *realistically provided*, with *sufficient equipment and know-how* to take control under conditions of maximum confusion. Control must be seized aggressively, with the least disruption of operations in progress, at a time when the enemy threat is greatest. How can this be accomplished?

To provide a group sufficient in know-how to produce a commander and an adequate staff we must turn to the source where knowledge of the persons and plans is greatest. These requisites can be met at three places: the given headquarters; its subordinate headquarters; and its next higher headquarters. It is within these headquarters that the greatest familiarity exists with current and projected operations and of the capabilities and limitations of persons and units. This then places a "demand bid" on each of them to be prepared to take over another command in the event of emergency and *continue their own operations as well*.

To examine in some detail how such a program must work, let us deal in specifics for a moment. The 50th Infantry

Division, part of II Corps, is composed of the 150th, 151st, and 152d Regiments. A detailed "Succession of Command Plan" is being prepared for the 50th Division. It has been the usual policy in the past to prepare this plan with the assistance of only the *Army Register*, but this leaves something to be desired in that normal duty locations of personnel had little bearing upon selection. It appeared that in the past it was a basic assumption that the "old man" would be shot by a rifle with no one else nearby, and his staff would continue merrily on their normal paths.

From Subordinate Units

The succession of command plan should include a command group selected by name from the subordinate units with a commander, a general staff, and key special staff officers designated by name. Each of the staff officers (designate) should select and so inform one noncommissioned officer capable of fitting into a new staff section on short notice. Although it may confuse some routine supply and personnel records, each designated officer should be prepared to take with him a vehicle, driver, and a minimum of such other "tools of his trade" as he may need. Within this minimum must be predesignated items of signal equipment. The plan designating this group should be published, given a code name, and reviewed periodically to keep it up to date. Copies should be given to each designated officer. One or two meetings are imperative, if for no other reason than to permit the opportunity to associate names and faces and assure complete understanding of the plan.

This command group designated from subordinate echelons meets only a portion of the requirement. One could envision many situations where this group could not be assembled, or where their withdrawal would severely disrupt the operations of the subordinate units. Hence an-

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other group should be provided on an on-call basis.

Another source of a command and staff group is within the headquarters itself. It would appear that this would be most desirable and truly would be if it were not for two significant considerations. First, try as you might, there are not enough people in the Infantry Division headquarters to plan and operate on a 24-hour basis now. To split it further only lowers efficiency. Specifically, the G4 Section has a lieutenant colonel, G4; a major, Assistant G4; a major, Transportation Assistant G4; and a warrant officer. To provide for 24-hour operations, logical planning and a duplicate headquarters requires, at least, a sharp knife or the personnel cannot be stretched to accomplish the various duties. This applies equally to other staff sections at the division level. Second, since there are a limited number of personnel and inadequate amounts of signal communications equipment, the operation of a duplicate headquarters appears infeasible. This means both the primary and alternate command and staff group are working at the same place. It would, therefore, seem logical to assume that what strikes the "first team" will also take care of the "second team" at the same time—that is, unless someone develops a type of weapon that is selective in its destruction.

Although it is habitual to direct our limited considerations of succession of command within the division to this "horizontal" type of approach, it has truly "lip service" to date. On maneuvers over a short period of time, divisions have established and operated duplicate command posts. The net result was probably acceptable for limited periods if you were to overlook the exhaustion of staff members and the lack of ability to continue at such a pace indefinitely. If you were to participate in such an exercise, you would find insomnia an invaluable attribute.

The third source of an experienced, knowing command and staff group would be from the next higher headquarters. In the situation we have drawn, this would be from II Corps headquarters. It cannot be denied that the higher headquarters has suddenly become much more interested in the welfare of the subordinate commands. II Corps would be much concerned if suddenly the headquarters of the 50th Infantry Division "disappeared." This concern would undoubtedly manifest itself, in the absence of plans, into a first-class state of confusion. If the concern could reach such proportion, then plans should be developed to meet such a contingency.

A "cadre" type of command and staff organization should be created suitable to take over control of any major subordinate command on short notice. Within the II Corps headquarters, adequate trained personnel exist to provide a nucleus for an experienced and informed command and staff group. Also available would be sufficient technically qualified personnel, both officer and enlisted, to fill all special staff sections and key enlisted spaces until replacement channels could provide additional assistance. Corps could, as well, place on a standby basis a partial set of command post equipment to provide a ready source of minimum requirements.

Within any plan providing for an alternate command group, there must be included elements other than those dealing with personnel and equipment. These should include the designated alternate sites of the command post in their priority. In this instance it should be related to other command post sites, first at the division artillery command post and second at the command post of the reserve regiment. Minimum distances between command posts should be established. Provisions for reports by survivors must be included.

Three plans have been presented, two of which satisfy realistically the require-

ment for a sound workable means of assuring continuity of command and control. But writing plans will not suffice in itself. Individuals affected by these plans must be kept informed. It will be necessary to reproduce a few more copies of the operation and administrative orders and dispatch them to key staff designates. A copy of the weekly personnel summary should go to the commander and enlisted men designates. Significant onetime reports should be forwarded to interested officers to keep them informed. A copy of the signal operation instruction should habitually go to the designated signal officers.

Conclusions

Although three plans have been described in some detail, this really should be viewed as a single plan with one alternative or the other to be implemented as the situation dictates. If the headquarters developing such a plan is larger than a division, there can be three portions in that provisions for a duplicate command group can be developed from personnel within that headquarters. Even this is none too much, unless you are sufficiently psychic to determine in advance how far disaster can reach.

These proposals have been tested, in

part, within a system with which we are all more or less familiar. They are nothing more than extensions of the accepted cadre program into a second or continuing phase. An innovation has been suggested whereby certain critical items of equipment will be provided on an emergency basis to assure minimum operations until replacement equipment can be procured. What has been proposed is applicable, with minor modification, at any level.

The need for an acceptable, concrete plan for the replacement of complete headquarters is an accepted fact. It is not being pessimistic to plan for the replacement of an entire headquarters any more than it is to lay detailed plans for a counterattack while conducting the defense. Development of such detailed plans do not replace the need to dig in and disperse a headquarters, nor can it be used in lieu of correct signal security or camouflage. But when those means fail it is a feasible plan by which direction and control may be quickly reinstated to what otherwise might become an undirected effort. Although to many this may have seemed to be "much to do about nothing" it may prove to be far better than "much to do with nothing."

This dual requirement for the big war and the small war means that we must constantly develop two fundamental capabilities: firepower and mobility. . . . The rapid development of these same capabilities on a worldwide strategic scale . . . constitutes the major aim of the present Army. The firepower will come from the improved weapons which have been designed, many of which are in the hands of our troops—the Army's atomic cannon, the *Honest John* rocket, the *Corporal* missile, and many other similar weapons. The mobility will come from the improvement in all forms of transportation, but particularly in the field of air transport. Neither element—firepower or mobility—is sufficient without the other. . . . Together, in the proper combination, they are the answer to the threat of aggression large and small. . . .

General Maxwell D. Taylor

REARMAMENT AND THE SPIRIT OF GERMANY

Wing Commander J. Gellner, *Royal Canadian Air Force*
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The views expressed in this article are the author's and are not necessarily those of the Department of the Army or the Command and General Staff College.—The Editor.

THOSE who may have expected German youth to rush joyously to the recruiting offices following Germany's admission to the Western European Union and to the North Atlantic Treaty Organization have come in for a rude awakening. The new armed forces—or rather, for the present, the prospect of new armed forces—have engendered practically no enthusiasm in Western Germany. Instead, they have been greeted with indifference by the majority and with hostility by a very active and vociferous minority. The young people have done most of the decrying of German national defense. To read of the obstacles that defense legislation is encountering at every turn in the Federal Parliament, and to hear that the Minister of Defense, Mr. Blank, is being shouted down (and in at least one instance was actually assaulted) at public meetings, makes one wonder whether our policy of demilitarizing Germany was not successful to a point when it may be impossible to produce again that superlative efficiency which

characterized the German armed forces for about 100 years.

Indeed, watching the loudly antiauthoritarian young Germans of today, one may even suspect that the saying about innate German militarism was only a cliché. Yet we are told that the creation of efficient German military forces standing on our side is to us a matter of utmost importance. Efficiency in any pursuit comes from a combination of technical skill and of will or spirit. The presence of the former we can take for granted where Germans are concerned. It is thus the spirit of present-day Germany that will decide whether the West will have at its side a meaningless few hundred thousand uniformed men or a powerful military ally. To analyze contemporary German political and social thought would obviously be a monumental task far beyond the scope of a magazine article. All that can be attempted here is to examine some of the main forces that bear upon the problem of what the Germans call *Wehrgeist*, the spirit of armed defense.

Concept of State and Society

That which gave to the German male of the past his pronounced soldierly qualities was first and foremost his concept of state and society. While the history

One of our war aims in the last world conflict was the demilitarization of Germany. Were we so successful that it may be impossible to produce again the superlative efficiency of the German armed forces?

of other Western Nations shows a protracted struggle between society and state, resulting in the present supremacy of the state (to us the state is only the instrument through which the collective will of its citizens is acting), no serious struggle of this kind will be found in German history. Hegel was the interpreter of the basic belief of his countrymen that the state is the consummation of society. While the British in 1640 and 1688, the Americans in 1776, and the French in 1789 rebelled against the oppressiveness of the state, and ultimately adapted it to conform to the new structure of society, the overwhelming majority of the Germans recognized the supremacy of the state and found their freedom in the acceptance of this supremacy. So unshackled a mind as Goethe expressed this philosophy so alien to ours:

We do not become free by refusing to recognize anything above us, but by venerating what is above us. For by venerating it we lift ourselves up to it and evidence by our recognition of it that we . . . are worthy to be of its kind.

This concept of the dignity of submission to the all-powerful state made the average German "venerate" Bismarck's new Reich and the Germanies of the Kaiser and of Adolph Hitler. Hence the willingness, the desire to serve the divine state, and the pride when the aim of serving it directly as a soldier or as a bureaucrat was achieved.

Wing Commander J. Gellner studied law in Austria, France, and Czechoslovakia where he received his degree in 1929. He practiced law in Brno, Czechoslovakia, until the Nazi occupation in 1939, when he came to the United States. A short time later he went to Canada and enlisted in the Royal Canadian Air Force. He flew with Bomber Command and received a permanent commission at the end of the war. He is presently a member of the Directing Staff of the Royal Canadian Air Force Staff College, Toronto, Ontario.

National ways of life reflect themselves in the behavior of the individual. The prejudice against peacetime soldiering held by most young North Americans is as much the result of a general distaste for governmental compulsion as the young German's cheerful readiness to serve under the colors reflected his attitude to the "venerated" state. As far as the German citizen soldier was concerned we may thus accept Clausewitz' assertion that he was soldierly but not warlike, that is, that without liking actual fighting he enjoyed military order and strict discipline. The professionals, particularly the professional officers, were something else again.

Influence of Prussia

The creators of the Prussian, and from it the German, military system were the second and third kings of Prussia, Frederick William I (1713-40) and Frederick the Great (1740-86). It was an adaptation to modern arms and fighting methods of the feudal order in that it was based on a professional warrior caste. In Prussia these latter-day armored knights were the aristocratic landowners, mainly of the Eastern provinces, the "Junkers." In the beginning they held an absolute monopoly on the officers' appointments in the Prussian Army. They were reared in the warrior tradition and educated for military leadership. The king was not only their commander in chief but also their feudal lord and they the trusty vassals were sworn to defend his realm. Ownership of land imbued them with the farmer's healthy conservatism. Ownership of serfs gave them the habit of command. Their holdings were mostly small and, with the coming of industrialization and the consequent advance in world commerce, their land became progressively more unprofitable. Thus the Junkers grew up in great simplicity. In their early teens they entered the cadet schools which were but an extension of the Spartan regime to which the boys were accustomed from home.

Commissioning brought the necessity of keeping up appearances on meager pay, and thus more enforced simplicity, more self-denial, and more devotion to the cause as such rather than to the material benefits derived from it. The end product was the iron men who led Prussian troops in battle.

At that time England too had something resembling a professional officers' class in the offspring of the yeoman whose "eldest son became the squire, the next the parson, and the third the dragoon." But what a difference between the care-free English youngsters with all their dash and lack of military knowledge, for whom service in a fine cavalry regiment was a social rather than a martial pursuit, and the dour Prussian fanatics of service! Later, commoners were admitted into the officers' corps, although at first only into the technical arms, like the artillery and engineers, for which the Junkers generally did not have the educational background.

Yet right to the end of the old Imperial Army the Junkers took a disproportionate slice of the officers' appointments and held most of the senior posts. This changed but little in the days of the Reichswehr and still was true when World War II broke out. In 1939 the Commander in Chief of the Army, Von Brauchitsch, and the three principal commanders in the field, Von Rundstedt, Von Bock, and Von Leeb, all were scions of Junker families. In any case the commoners in the Army (the Navy and later the Air Force were always nonaristocratic services) soon patterned themselves after the Junkers and, when with higher rank and increased merits they acquired the coveted predicate "von" by their sovereign's favor, they became practically indistinguishable from them.

As for the professional German non-commissioned officer, his single-minded devotion to duty sprang from that Ger-

man pride in serving the state and from the prestige of the uniform. They too belonged to the soldier class (*Stand*) rather than professional (*Beruf*) that was the core of the old German militarism. It was the highest class in the state, and it was surrounded by the admiration and devotion of the people. In his *Germany and the Germans*, Eugen Diesel has expressed the relation between soldierly citizenry and warlike soldier class:

Germany's lodestar was the soldier, and Prussia, the embodiment of militarism, became the ideal in which the German love of order and organization could find full satisfaction . . . Germany had risen by the sword: by the sword, then, it would continue to live. In military vigor lay the path to success . . . the barrack yard became the arena of national prowess.

What Remains Today?

We may pause here to examine what remains today of those strong foundations of the German military system, the warrior caste of leaders, and the soldierly citizenry. As far as the former is concerned, the answer is clear: practically nothing. Hitler deliberately smashed the Junker class, and the division of Germany has completed the work of destruction. Hitler felt only venomous hatred for the traditional type of German Army officer. As he progressed toward the megalomania of his later years, his long memory centered more and more on real and imaginary opposition, on real and imaginary slights that he had experienced in the past. He often exulted in recalling that in the Great War he had been "a simple soldier," but deep inside him there undoubtedly was the angry thought that proletarian origin had barred him, the genius, from commissioned rank. Then again, in November 1923, it had been the Reichswehr that had contemptuously brushed aside his first attempt to seize power—and all senior Army officers came

from the Reichswehr. In the first few years of the Nazi regime he had been forced to curry favor with them because he was weak and beset with Party difficulties. Even after the "Night of the Long Knives" and the elimination of Roehm's opposition, the Army could have unseated him at will—and the generals made it clear that they were standing by him only as long as, in the military sphere at least, he helped them to achieve *their* aim.

Later, when Hitler was definitely in the driver's seat, many of them hardly bothered to conceal their contempt for the Nazi ruffians. This was coupled with his resolve to avoid other than official contacts with them. That a select group of Germans should look down their noses upon him and his work must have driven a man like Hitler into carpet-chewing rage. What weighed most heavily with him was that such active opposition as there was against his regime came from two groups only, both conservative: churchmen and old type officers. He persecuted both. Because the attentate of 20 July 1944 was prepared by the latter, however, and because he considered it the more dangerous of the two opposition groups in any case, he acted against the traditional officers' class with the greater fury.

Junkers Liquidated

Those who survived the war and the blood purges following 20 July 1944 found themselves uprooted and depossessed when the home of the Junkers, Prussia, fell into Communist hands. In Walter Gorlitz' *History of the German General Staff* can be found actual figures that show how complete was the "liquidation" of the old, famous fighting Junker families:

... thirty of this family's (the Von Arnims) members had fallen in the course of the war, 1 had died in a concentration camp, 2 were shot by the Russians, 3 were transported, and 8 died by their own hand. In the case of the Von der Schulen-

burgs, which family had produced 3 field marshals and 35 generals, the record is as follows: Two of its leading members took part in the plot and were executed. Fourteen others fell in the war. Seven committed suicide when the Russians broke in. . . .

World War I, too, made great inroads in the ranks of the German officers' caste, but when it was all over the survivors continued to live in their traditional social and professional environment. This time the few who were left were forced to exchange the family farm for a room in a boarding house, the salesman's briefcase for the sword. Some of them will undoubtedly be in the new army—there were men with names like Von Bonin and Von Mannteufel, familiar from Prussian military history of the last three centuries, among the early planners in the *Amt Blank*—but it is plain by now that they no longer will give their imprint to the officers' corps. There is no more warrior caste in Germany.

Little Enthusiasm

The second pillar on which rested German military prowess, a soldierly citizenry, has also been weakened. The basic attitude of the average German toward the state has perhaps not changed very much, but the state as it is today engenders in him little enthusiasm; he is much less ready to serve it than his grandfather and father were ready to serve the state of Bismarck, of the Kaiser, and of Adolf Hitler. The plain fact is that democracy still is not very popular in Germany. This is understandable if one considers the authoritarian character of German society (as manifested every day in the relations of the German father to his children, of the superior to his subordinate, and even of the master to his dog); the singular lack of success that liberal leaders have had both in monarchic and in republican Germany; and the fact

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that both times that it was adopted as Germany's political philosophy, democracy was born of defeat. We have it from the greatest German writer of this century, Thomas Mann, that "the German mentality is essentially indifferent to social and political questions." Most Germans would still rather be without political freedom and be members of a brutally strong, awe-inspiring authoritarian state than exercise their citizens' rights under honest but colorless democratic government. The Germans can safely be trusted even today to do a good, workmanlike job as soldiers, but there is no longer that frenzy of emotions that made them fight against any odds under the Imperial banners and under the Nazi swastika.

The attitude of "this time without us" and "fight, for what?" can be found among members of all classes of German society. It is particularly strong among the university students, which is remarkable because in the past the universities had been the hotbeds of blustering and belligerent nationalism. We have already pointed to the fact that it is not so much the older men who have gone through the horrors of the battlefronts of World War II but the youth who are opposed to the rearming of their country. This is probably the result of two almost opposite forces which more than any others have influenced the young people who have grown up in Germany since the war: socialism and American civilization.

The term "socialism" needs to be qualified where its political exponent in Germany, the Social Democratic Party (SPD), is concerned. The SPD is probably more petty bourgeois than any of the other moderate socialist parties of Europe. It once had a radical wing, but it cast it off immediately after World War I and has been instrumental in the bloody suppression of the civic disturbances which the "red socialists" engineered. The SPD has a nationalist tradition; it has been

said that it is more German than Socialist, more Socialist than Democratic. There were even times when the Party did not seem to mind Prussian militarism. In fact, the first Minister of Defense of the Weimar Republic, the Socialist Moske, was something like God's gift to the Reichswehr. However, the furtive flirting with the Prussian war lords did not last long, and was in any case almost certainly only the policy of one group in the Party leadership. The SPD now firmly believes that the establishment of permanent military forces in Germany leads to the suppression of democracy, because—to quote from William Ebenstein's brilliant political portrait *The German Record*—the German military leaders have always been able to elevate themselves:

... from the position of an instrumentality to that of the masters of the state, and to permeate the temper and ideas of the other classes in society with the habits and attitudes of army institutions.

Remembering the part that the 100,000-man Reichswehr played in the downfall of the Weimar Republic, the Socialist leaders shudder at the thought of new standing armed forces of five times that number. They have not come out with an alternative suggestion—for they too proclaim that they want Germany to have the means of defending herself—although they have talked vaguely about a militia system. In the meantime they are campaigning vigorously against the rearmament clauses of the Paris Agreements. In the proposition that rearmament blocks the way to German unification they have an argument that appeals to those Germans who would be indifferent to the Socialists' preoccupation with the future of German democracy. It is mainly because of this argument that the Socialist Party's stand on the question of rearmament has such wide popular support, particularly among young people.

American Influence

Any observant foreign visitor must notice how great American influence has been on German life in the years after the war. The Germans themselves will hotly deny it. They will speak of their *Kultur*, of their intellectual achievements, of the absurdity of believing that a nation as highly developed as theirs should be affected by ideas emanating from what they think is a comparatively primitive, strictly materialistic civilization. They will be shocked and deeply hurt when they are told that there has been very little original thought in Germany in this century, just as there has been little art of any significance; and that, after the special German "Chinese wall" was broken down in 1945 and the way was cleared again for a free interchange of foreign ideas, particularly American, influence on German thought has been very strong. It is only natural that the young have been more "Americanized" than the older people. German youth is now quite resolutely battering at the authoritarian and paternalistic structure of German family and German society. In the process much of the typical North American attitude toward peacetime soldiering has been adopted by the younger set. American soldiers have unwittingly done their part in deglamorizing military service in the eyes of German youth. Only a few decades ago young German men wore bouquets of flowers and sang their joy when they successfully passed their examination for military service. They hung their heads in shame if rejected. It is more likely that today their reaction will be one of

resignation like that of many of their American contemporaries who find themselves "caught in the draft."

Conclusion

The able men entrusted with the organization of the new German armed services are confident that they will be able to recruit the necessary numbers of regulars—and that the draft will take care of the rest. But they, too, undoubtedly realize that the German forces of the future will be quite different from those that fought in the last two wars. There will be a competent professional element, but no warrior class with fighting as their vocation; there will be the great mass that will accept the burden of military service with German stolidity (and probably do a good job at it), but no longer a soldierly citizenry eager to subject themselves to military order and discipline.

In these past years we have tended to forget that the demilitarization of Germany—in the sense of making the Germans a peaceable nation—was one of our most important and most legitimate war aims in the last world conflict. Those who deplore the lack of martial spirit in the Germans, now that we want them ranged with us in the defense of the free world, should recall that not so long ago war (in the words of Mirabeau) was "Prussia's national industry" and that the democracies fought two desperate wars to destroy it. We should try and understand what has brought about the reversal of the German attitude toward armed might, and hope that the change is permanent and Prussian militarism gone forever.

MOVING?

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LOGISTICS AND WORLD WAR II ARMY STRATEGY

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The views expressed in this article are the author's and are not necessarily those of the Department of the Army or the Command and General Staff College.—The Editor.

THE relationship between strategy and logistics usually is portrayed as though strategy clearly is the father and logistics the son. For example, paragraph 34 of Field Manual 101-51, *Department of the Army Planning and Programming Manual*, states in part:

The purpose of the Joint Strategic Objectives Plan is to: a. translate national policy of the United States into terms of military strategy and objectives which are considered attainable by the midrange period. . . . b. provide guidance for the pre-D-day development of forces and resources required to support the strategic concept.

Yet, in his message to Congress on 6 January 1942, President Roosevelt said:

The superiority of the United Nations in munitions and ships must be overwhelming, so overwhelming that the Axis nations can never hope to catch up with it . . . and so in order to attain this overwhelming superiority the United States must build planes and tanks and guns and

ships to the utmost limit of our national capacity.

The President was seeking the greatest possible total of munitions without regard to a strategic plan.

In this article the interplay between the grand strategic and logistic decisions of World War II will be explored in order to define more clearly the relationship between the two; the plans and actions of the United States Army will be the principal backdrop.

The author intends to show conclusively that in World War II the role of strategy and logistics was *not* that of father and son as mentioned above, but almost the reverse; that the basic United States strategic-logistic decision was to "out-produce the foe"; that the great international conferences of that war allocated available resources in support of short-range plans, but did not give long-range strategic or logistic guidance and, finally, that in the United States Army the long-range guidance needed in our production program was developed on the initiative of a logistic agency.

To accomplish this, let us closely examine the Munitions Program of 1940, the Victory Program of 1941, the Strategic Conferences of World War II, our 1942-43 Production Goals, and the adjustments necessitated by these programs.

An appropriate starting point for a

The projection of military requirements must be on the broadest possible basis in order to give a reasonable chance that the items that become available can support a wide range of strategic courses of action

review of United States strategy in World War II is the Rainbow series of plans prepared in 1939. Five in number, they covered the concepts of preventing violation of the Monroe Doctrine, protecting the United States, her possessions and sea trade; sustaining the authority of democratic powers in the Pacific zones; securing control of the western Pacific; affording hemisphere defenses by sending United States task forces if needed to South America and to the eastern Atlantic; and, lastly, providing for sending forces ultimately to Africa or Europe in order to effect the decisive defeat of Germany or Italy or both.

As a measure of our military readiness at that time, it should be noted that in early 1939 the Regular Army was authorized a strength of 210,000. By the following September a strength of 227,000 had been authorized with mobilization plans calling for an initial force of 750,000 men. Matériel planning and production programs lagged below even these levels.

In May 1940 the President appointed an Advisory Commission to the Council of National Defense. William S. Knudsen, who was the production authority on the committee, promptly sought both long- and short-range guidance from the Army and Navy to help him determine the munitions productive capacity that we needed and how rapidly we would need it. This request resulted in a proposed munitions program,

based on equipping an Army of 1 million men by 1 October 1941 and an Army of 4 million by 1 April 1942. The scope of this program was reduced about 30 percent by the President before he approved it—the cost was estimated at 7.3 billion dollars.

Shortly after this program was approved Mr. Knudsen informed the President and the War Department that industry could not meet the goals. A choice had to be made between equipping a 2 million-man Army soon, or a 4 million-one much later. The Chief of Staff chose the former and a revised program was drawn up calling for a 6 billion-dollar program. The President was unwilling to accept this figure and, on 10 July 1940, offered Congress a program slightly under 4 billion.

This program was based on the equipment needed to: procure reserve stocks of all items of supplies needed to equip and maintain a ground force of 1 million men on combat status (by 30 September 1941); procure all reserve stocks of the important longtime items of supplies needed to equip and maintain a ground force of 2 million men on combat status (by 31 December 1941); and create facilities which would permit a production sufficient to supply an army of 4 million men on combat status (no target date set).

This program originally was based on War Department plans current at the time and, therefore, represented an attempt to obtain the resources needed to support a "strategic" plan. However, it was changed during the last 10 days of June 1940 into a "production" program that the Advisory Commission thought industrially feasible and a dollar total that the President thought politically feasible.

That this program fell short of meeting possible commitments was discussed in a War Plans Division (WPD) paper on 25 September 1940. Serious shortages of men and matériel were documented in this paper but no apparent action resulted.

A new note was introduced by the Presi-

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dent in a fireside chat on 29 December 1940 when he used the phrase, "We must be the great arsenal of democracy." This idea appears to have been the direct result of a long and detailed plea for assistance sent the President by Prime Minister Churchill on 8 December 1940. While this letter was a plea for United States assistance to assure the survival and independence of the British Commonwealth, it gave no strategic military plan to accomplish that objective. It did, however, give emphasis to the production problem in these words:

It takes between 3 and 4 years to convert the industries of a modern state to war purposes. Saturation point is reached when the maximum industrial effort that can be spared from civil needs has been applied to war purposes.

By 16 December 1940 President Roosevelt had reached a decision on aiding Great Britain. At his press conference on that day he used the illustration of loaning a length of garden hose to a neighbor when his house is on fire. From this beginning there arose the great system of lend-lease through which so much material was to flow to our Allies during the war.

This support of our Allies was, of course, a great part of our total war effort. However, the production load placed on the United States under this system was not, and could not have been, related to any strategic plan of the United States or even of the Allies taken as a whole. This resulted from the fact that production demands placed upon the United States through lend-lease were residual demands for each ally. They were deficits existing after each claimant had made his own internal supply requirements balance and, therefore, there could be no over-all pattern or balance.

British staff representatives arrived in the United States late in January 1941 to discuss the best methods by which the

United States and the British Commonwealth could defeat Germany and her allies in the event the United States should be compelled to enter the war.

As a result of these staff discussions, a paper outlining a world strategy for United States-United Kingdom forces was prepared. Known as ABC-1 (27 March 1941), it contemplated a possible buildup of large air and land forces by the United States for major offensive operations against Germany and her allies. This was to remain the primary offensive objective even though Japan should enter the war. However, it was not approved by the heads of government and was, therefore, only a military staff guide.

These discussions and the resultant United States plans under Rainbow 5 clearly made a choice of Germany over Japan as the principal foe should the United States enter the war. The choice had to be made based on logistics—we simply could not have mustered sufficient effort to deal with both major enemies simultaneously. Thus *logistics provided the frame within which the first great strategic decision was made.*

Victory Program 1941

Everyone seemed to be unhappy in one way or another about the munitions production program discussed above and several actions were soon underway to change it. For instance, requests under lend-lease from the United Kingdom led to a recommendation within the War Department that a single planning agency be created to prepare a *supply plan to ensure victory*. Although this proposal was brushed aside at the time, it is the apparent forerunner of the plan finally adopted.

On 18 April 1941 Under Secretary Patterson, in a memorandum for the Secretary of War, clearly suggested that we should gauge our munitions program against a presumed enemy munitions effort. The "use" to be made of the munitions (a strategic plan) was secondary.

to the "amount." It was a logical extension of the concept of an "Arsenal for Democracy."

The Chief of Staff appears to have been concerned at this time with the requests and pressures that were flowing in from many sources and he asked the WPD to prepare a new strategic estimate based on the *capabilities* of Germany, Japan, Italy, and Great Britain.

In May 1941, at a conference with the WPD, G3, and G4, the Chief of Staff mentioned the desire of the Office of Production Management to increase and continue its orders in order to utilize industry to its fullest extent. At the same time he was reluctant to move too far for fear of building up stocks of obsolescent items.

Within the General Staff there was a concern over the lag in the delivery of equipment. As of May 1941 G4 estimated that we were a year behind the expectations of 1940, and that it would be mid-1942 before the initial protective force could be equipped.

All of these concerns were brought to a head on 9 July 1941 in a Presidential directive which called for an estimate of the munitions and mechanical equipment needed "to exceed by an appropriate amount that available to our potential enemies."

It was indicated that the estimates were wanted for the establishment of industrial capacity goals. Work which had begun under the earlier directive of the Chief of Staff was accelerated by this directive; the final product came to be known as the Victory Program. It was based on the assumptions that no extensive United States Army operations would be underway before 1 July 1943; that the strategy of Germany, priority target 1, Japan, secondary, would be followed; that manpower availability would be the key limiting resource with an ultimate ceiling for the Army and Air Corps of 8,795,658; and that the peak number of

major combat units of the Army would be:

<i>Units</i>	<i>Proposed</i>	<i>Actual (1945)</i>
Infantry Divisions	83	66
Armored Divisions	61	16
Airborne Divisions	10	5
Mountain Divisions	10	1
Motorized Divisions	51	0
Cavalry	0	1
Total	215	89

Since the composition of the troop list affected in a large measure the quantities of different types of matériel needed, the difference between the list used as a basis for computations of the Victory Program and the list of those actually operational indicated the production adjustment problems to be solved.

It should be noted that the preparation of a munitions production program without a direct tie to strategic plans did not go unchallenged. On 5 August 1941, WPD addressed a memorandum to Mr. McCloy in which it was stated that "we must first evolve a strategic concept of how to defeat our potential enemies and then determine the major units required."

On 30 August 1941 the President asked for recommendations concerning the distribution of expected United States production of munitions between the United States, Great Britain, the Soviet Union, and other recipients of aid until 30 June 1942. He also requested general conclusions as to the over-all production effort of important items needed for victory, on the general assumption that the reservoir of munitions power available to the United States and her friends was sufficiently superior to that available to the Axis Powers to ensure their defeat.

On 10 September 1941 the Army's estimate was submitted as a unilateral document since agreement had not been reached with the Navy. A Joint Board Estimate was submitted 2 weeks later in which not only separate requirements were given but

a major split was indicated between the Army and Navy as to the timing and magnitude of the Army effort.

On 6 January 1942 the Victory Program was redesignated by the Deputy Chief of Staff as the "War Munitions Program." This program determined the major outline of the munitions produced in 1942 and 1943.

While none of the above actions, of themselves, excluded the use of a strategic plan, the keynote was "outproduce the foe." How well we did this can be gleaned from the following summary of United States aid to our Allies as reported in General George C. Marshall's 1943-45 Biennial Report:

Not only did the Nation's industrial establishment equip our Army, but it also contributed heavily to the hitting power of the other United Nations. . . . Translated into these terms [dollar cost of equipment] . . . the arms alone turned over to our Allies would equip 588 armored divisions or 2,000 infantry divisions.

In light of the foregoing, let us now turn to the great strategic conferences of World War II which, in setting the pattern for offensive actions, allocated available resources in support of short-range plans and did not give long-range strategic or logistic guidance. In reviewing them it is essential to keep in mind that major changes in production programs could not be made quickly, since lead-time for even the simpler military items was on the order of 6 months. The following are the great strategic conferences with the salient features of each:

Washington, December 1941, Arcadia.—This conference set the stage for United States-United Kingdom operations; confirmed the general strategy of: defeat Germany first, hold Japan.

London, April 1942.—Western Europe was accepted as the most suitable theater for a main effort against Germany. Planning for an invasion in 1943 was author-

ized. Decision to hold against Japan was reaffirmed. Emergency diversionary landing in Europe in 1942 was considered if needed to allow the Soviet Union to continue the war.

Washington, June 1942.—North African operation for November 1942 was approved; major invasion of Europe was postponed.

Casablanca, January 1943.—Decision was made to intensify the bombing effort against Germany and to renew the buildup for the invasion of Europe. (It should be noted that a planning staff for the European invasion was not established until April 1943.) Invasion of Sicily (July 1943) was approved. Moderate action against Japan in the Aleutians and Midway areas was also approved.

Washington, May 1943, Trident.—Confirmed the intensification of the bombing of Germany and proposed concentration of 29 divisions in the United Kingdom for an invasion in May 1944. Operations in the Mediterranean were to continue to include the invasion of Italy. Operations against the Japanese were to continue. General Marshall said of this conference:

This meeting . . . may prove to be one of the most historic military conclaves of this war, for here the specific strategy to which the movements of the land, sea, and air forces of the Americans and British Allies conformed was translated into firm commitments.

In July 1943 the Combined Chiefs of Staff (United States-United Kingdom) received the proposed plan for an invasion of Europe in the spring of 1944.

Quebec, August 1943, Quadrant.—Agreed to continue planning for the invasion of Italy (for September 1943), and for the invasion of Southern France in conjunction with the Normandy operation. Operations against Japan were to be continued in New Guinea, the Gilberts, and the Marshalls. The plan for the invasion

of Western Europe was approved. It should be noted that the plan for the invasion of Europe was approved 9 months before the invasion was scheduled to take place.

Cairo, November 1943, Sextant.—Invasions of Western Europe and Southern France were to have priority over all other operations. Consequently, advances in Italy would be limited and there would be no Balkan effort. Operations against the Japanese in the Marianas were approved. General Eisenhower was selected as Supreme Commander at this conference. It was at his insistence that the attack was broadened and the assault craft requirements increased from 5 to 7 divisions. This resulted in a month's delay in the Normandy assault. It was also necessary to delay the invasion of Southern France in order to get more landing craft for Normandy.

Quebec, September 1944, Octagon.—Plans were laid for shifting to a 1-front war against Japan while finishing up in Europe and Italy. By virtue of information received while the conference was in session, it was decided to bypass the Southern Philippines and go directly to Leyte in October 1944.

Yalta, February 1945, Argonaut.—Final plans for the destruction of Germany and the invasions of Iwo Jima (February 1945) and Okinawa (April 1945) were approved. It may be noted that this was only 3 months before the final surrender of Germany on 7 May 1945 and almost coincided with the Iwo Jima operation.

Berlin, July 1945, Terminal.—The use of atomic weapons against Japan was approved. Soviet assistance against the Japanese was accepted. It should be noted that the invasion of Europe was a perennial topic of discussion at these conferences. Not only was it the biggest single operation of the war but also seemingly the most uncertain. Each time a solemn agreement was reached something came along to change the situation (principally that of

the British interest in the Mediterranean).

From a review of these conferences, all of which, except the first two, were held by the heads of government in person, it is evident that the grand strategic decisions were short range in character. In general, they dealt with the use and manipulation of resources which were already available or in sight. They did not deal with the creation of resources necessary to carry out a future plan.

It appears then that the basic strategy, as well as logistic, decision of World War II was made when the Victory Program was formulated with the slogan, "out-produce the foe."

The Army Service Forces (ASF) established on 9 March 1942 (as SOS) supplied the ground combat forces on one hand and dealt with industry (and the civilian control agencies) on the other. One of its key problems is worthy of a brief review here.

ASF, since it came into being after the Victory Program had been developed and approved, inherited a production program, an industrial buildup, and a philosophy of maximum production. It did not find a long-range strategic plan against which to measure progress and by which to guide production.

Soon after ASF began to function it discovered that the Presidential goals contained in his 6 January 1942 message to Congress were a major upsetting factor. They were expressed in terms of goals to be reached for a selected few items in 1942 and 1943 (see chart page 53).

These goals were well above those in the Victory Program and were accepted by the Army as a foundation for a recalculation of all other items on a balanced program basis. This resulted in a large increase in the Army program. On the other hand, the staff of the War Production Board (WPB) had been attempting to make an estimate of possible production of munitions in 1942 and 1943. When the new Army figures were received in February

1942, there was strong feeling in the WPB that the goals were far beyond reach.

The basic point was well stated at a meeting of the WPB Planning Committee on 2 March 1942, when it was suggested that there are two possible approaches to an appraisal of military objectives. One is to arrive at a feasible military production estimate by determining the total production of finished articles of which the national economy is capable, and subtracting from this total the irreducible minimum of production required for civilian requirements. The second approach is to analyze qualitatively the specific military

He accepted a total munitions production for 1942 of about 45 billion dollars. This information was given to the services at a 7 April 1942 meeting of the WPB. No protests seem to have been registered.

Although the President also agreed at that time to a limit of 75 billion dollars for 1943, the military program continued to creep up until in mid-July 1942 it was approaching 90 billion dollars. Since the unfilled portion of the 1942 program might have been some 5 billion dollars, the apparent deficit was far beyond an "inactive," and threatened the accomplishment of the entire program. When this view was

Item	1942	1943
Planes	60,000 (45,000 combat)	125,000 (100,000 combat)
Tanks	45,000	75,000
Antiaircraft Guns	20,000	35,000

requirements as compared to the specific resources for production. It was then explained that the over-all quantitative approach should precede the categorical, qualitative analysis in order that the outer limits of total military requirements could be fixed.

Here it might be well to sound a note of caution as to "irreducible minimum civilian needs." The Chairman of WPB in his final report, Wartime Production Achievements, stated:

... we continued to provide the civilian economy with a greater total amount of commodities and services than in such good prewar years as 1937 or 1939. . . . Throughout the war the people at home were subjected to inconvenience, rather than sacrifice.

After further study within WPB it seemed clear that either the Presidential goals would have to be lowered or the military program reduced (although that would unbalance it). This situation was reported to the President who appeared to agree that reductions were necessary in the totals but *not* in his announced goals.

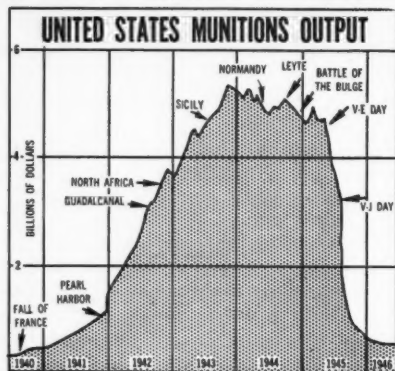
expressed to the services, the reactions were quite violent and led to a bitter exchange of correspondence and views.

At the suggestion of General Somervell, the matter finally was taken up with the Joint Chiefs of Staff (JCS) on 19 October 1942 (by then the 1943 programs had reached a total of nearly 93 billion dollars), who reduced the totals to approximately 80 billion dollars. The JCS felt that this was a minimum program and provided "for munitions for the Armed Forces which are balanced within themselves and against each other so far as production facilities will permit." They also indicated that this program required that *military tasks for 1943-44 be restricted to the capabilities of production.*

These incidents have been cited because they indicate that the Production Programs of 1942 and 1943 were keyed to Presidential goals and to estimates of "production" capacity and not to a "strategic" plan.

The Victory Program, the January 1942 Presidential goals, the subsequent military programs, and the JCS modification of October 1942 were aimed at producing

the maximum, feasible, balanced quantities of munitions of which we were capable and not at supporting a strategic plan.



We had continued to set our sights on "outproduce the foe" on the assumption that we could outproduce him and that that would suffice.

Conclusions

In reviewing the Production Programs of 1940 and 1941 Bureau of the Budget statistics show that:

... the whole production buildup of 1941 and 1942 was not, and could not be, based on strategy, because strategy was inevitably being constrained by our enemies and by the plight of our Allies. We were manufacturing munitions 'for the shelf' for equipping armies and squadrons, and not for specific operations the strength and date of which could not be forecast even by the chiefs of staff.

Further, in reviewing the great strategic conferences of World War II it was shown that the decisions came too late to be a guide to munitions production. As a consequence:

The ASF was compelled to anticipate the plans and decisions of the CCS, the JCS, and the War Department General

Staff (WDGS) in order to have sufficient lead-time to implement them.

It is believed that sufficient information has been given to support the thesis that we found it necessary in World War II to establish our entire munitions production program on the basis of an all-out production effort and not on the basis of a given strategic plan. We also found it necessary to adjust this production program as the war progressed on a short-range basis to take into account the fortunes of war. Outside of the basic decision to give priority in the use of our resources to the military effort against Germany, the other strategic decisions were all of such short range as to be useful only as modifications of going production programs and not as a measure of future production.

This situation is shown graphically on the chart where it will be seen that the rapid buildup in production of munitions occurred in 1942 and, at a slightly lower rate, in 1943. This buildup reflected procurement and production decisions made late in 1940 and in 1941, long before the principal operations of World War II had been planned.

As a consequence, the manner in which we fought World War II was determined very largely by the production decisions that were made when the then Major Stratemeier put together the outlines of the Victory Program. This is a splendid example of the fact that the projection of military requirements must be on the broadest possible basis in order to give a reasonable chance that the items that become available can support a wide range of alternative courses of action. It shows conclusively that we should shun the idea that a single set of requirements tied to a single strategic plan furnishes a proper basis for wartime production. We need instead a pattern of production which can support many courses of action while being precisely fitted to no one of them.

A VIEW OF THE SMALL UNIT REPLACEMENT SYSTEM

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This article is in consonance with current instruction at the Command and General Staff College.—The Editor.

A REVIEW of United States Army history, as concerns replacements, gives adequate proof that many systems have been tried under a wide variety of circumstances. Such a study provides convincing evidence that there is no single replacement system which can be applied to all situations.

The principal reasons for ever-changing personnel policies are generally obvious and may be summarized under the heading "manpower availability," or more properly, "manpower shortage." While the military services compete with every form of civilian endeavor for manpower, this competition is not in the sense of which can offer the most to the individual. Rather it is based on requirements. A proper numerical balance must exist among all users of personnel if the total national effort is to function at maximum capacity. Assuming such an equilibrium, a partial solution to the manpower shortage is better utilization. Proper personnel distribution and maximum effective employment may be the difference between

national survival and slavery the next time the chips are down.

It has been said that modern tools of war have not reduced the need for military personnel. This statement fully recognizes the increasing importance of the nonuniformed man in any future war effort. However, the increasingly complicated tools of war, including atomic and thermonuclear weapons, have made the individual soldier more important than ever before. Among other things he must possess greater versatility, alertness, self-reliance, and knowledge; he must have utmost confidence in himself, his organization, his leaders, his weapons, his country, and the cause for which he fights or is prepared to fight.

All of these required ingredients in a soldier, which collectively produce results, are influenced tremendously by his morale. It is like ethyl in gasoline, regardless of the octane rating. Napoleon stated: "The moral is to the physical as three is to one." Some nations even include morale, or the maintenance of morale, as a principle of war. High *esprit* in a group is a barometer of group efficiency. Thus improvement in morale and *esprit* is beneficially reflected in a host of highly essential soldierly qualities. It follows that every personnel policy, existing or pro-

If experience of the 2d Armored Division is representative, there is no question that the value of replacements to the using unit increases in the order: individual replacement, 4-man team, and packet platoon

posed, should be studied continuously to determine its effect on morale.

In our essentially citizen's army, the change by the individual from home life and civilian pursuits to soldiering is normally a major shock. This is particularly so until the recruit begins to feel a sense of "belonging" and to attain those nebulous things called morale and *esprit*. As every commander knows, these qualities do not begin to show in any large measure until sometime after he joins his first combat outfit. From time of induction to arrival at the combat unit overseas generally required from 6 to 10 months under the replacement training system used in the past. Obviously then, from a morale and *esprit* standpoint, there are two major morale goals to be attained during the formative period of the recruit's military career: reduction of all nonproductive time to a minimum; and the very best basic training.

This discussion is aimed primarily at one facet of the first major goal—speeding the individual from his training unit to his first permanent overseas assignment. The vehicle proposed to accomplish this is the small unit replacement system. The Department of the Army made a start

in this direction with the issuance of Special Regulations 600-150-10, *Personnel, Oversea Four-Man Team Replacements*, in June 1953.

A new idea or plan is reviewed, revised, and changed many times and by many echelons before it is finally tested, and the resultant product may bear little resemblance to the original idea. Whether any form of unit replacement is ever finally and completely accepted by the Army remains to be seen. Nevertheless, the author is of the school that thoroughly believes in such a system.

The basis for this article is experience gained in the 2d Armored Division overseas during the period June 1951 through December 1954.

Fort Hood to Germany

To understand the problems facing a replacement in the 2d Armored Division and his unit commander, a brief recent history of the division is necessary. The 2d Armored Division moved in echelons from Fort Hood, Texas, to Germany during the summer of 1951. Adequate permanent billeting facilities upon arrival did not exist for a large part of the unit. The resultant "tent-city" morale would have been far worse had it not been for the *esprit*, previous training, the newness of being in a foreign land, and, perhaps most of all, the intelligently planned training activities conducted before permanent type home stations were completed early in 1952. As echelons of the division arrived the division commander personally explained to every officer, noncommissioned officer, and enlisted man the mission of the division as a unit and the mission of each of us as individuals, in a precise, clear, and meaningful way.

The division was based in seven caserns. These home stations were located roughly in a triangular area with the cities of Mainz, Mannheim, and Baumholder at the points. The replacement company was sta-

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tioned at Bad Kreuznach, about as centrally located as possible. For most replacements, arrival in the division meant arrival at the replacement company and they were still in the replacement stream.

Division Training Cycle

The goal of every unit is, of course, to effectively integrate each replacement in the shortest possible time. Since the 2d Armored Division's mission required it to be combat ready 24 hours of every day in the year, to a large extent the training cycle had to be geared to its combat-ready mission rather than to the state of training of the individuals in any particular battalion.

The division trained under a modified Army Training Program with the training year running from 1 November to 31 October. Each year began with a short refresher course on advanced individual and small unit training, including strong emphasis on personnel and matériel maintenance with this training conducted mostly at home stations. About one-third of each year was spent in training in the field and the training year ended with maneuvers involving corps or larger size units. Obviously, the later in the training year a replacement joined his unit, the more difficult it was for him to become an efficient team member quickly.

Personnel Losses

Until October 1952 the division replacement problem was a minor one. As the entire unit moved overseas in the summer of 1951, preceded by screening of personnel in order to remove short timers, individual overseas tours and expiration of inductee military service tended to be "bunched." As a result, during the period October 1952 to January 1953 battalions and companies seemed to disintegrate almost over night. Some battalions lost as many as 200 men at a time (returning to the United States). Division losses ran as high as 3,000 men each month.

After January 1953 losses leveled off at from 600 to 1,200 each month. The next major personnel crisis came in May, June, and July 1954 when the normal 3-year overseas tour of duty expired. Officer and top three grader losses were staggering during these months.

The Pipeline Replacement

The division received all replacements through the normal replacement channels until September 1953. This so-called pipeline system has been adequately covered in previous publications, both as to its good and poor features. No discussion, therefore, of the division's experience with these replacements is given here.

There is a definite requirement for a more efficient replacement system; some of the undesirable characteristics of the pipeline system should and can be eliminated. As a basis for evaluating suggested changes, and at the risk of repetition, a partial summary of unfavorable aspects of the pipeline system appears to be in order.

The following *disadvantages* of the system particularly *impress the individual soldier*:

1. *The 30 to 60 days required* to move from replacement training center to overseas unit—and the somewhat shorter, although still long, time between departure from overseas unit and discharge in the United States.

2. *Unknown assignment*—usually even the Army does not know the unit to which the individual replacement will be assigned overseas.

3. *Ever-changing superiors* en route overseas—no single replacement system officer or noncommissioned officer supervises or is available for counsel during the entire trip.

4. *Lack of close friends*—his training center buddies have all gone their separate ways and are equally lonely.

5. *No sense of belonging*—this imper-

sonal system—no close friends, unknown future assignment, and excessive time to brood—too often produces a hopeless, unwanted feeling which usually lasts until long after the replacement has joined his new organization. Kindling the fire so necessary to unity of spirit and action, and to teamwork, becomes a major problem for even a topnotch overseas unit.

From the Army's point of view this system:

1. *Is wasteful of manpower*—it loses 30 to 90 days (including the return trip) out of 21 to 24 months of an inductee's military service.

2. *Requires numerous and extensive installations* along the pipeline route—which in itself is wasteful of both manpower and resources.

3. *Reduces unit combat efficiency*—particularly if a large number of such replacements join an organization at one time.

The author believes that these shortcomings of the individual replacement system can be avoided, at least in large measure.

Four-Man Teams

SR 600-150-10 inaugurated the overseas 4-man team replacement system, with initial implementation limited to infantry replacements. This directive provided for the formation of 4-man teams at the end of the twelfth week of basic training from infantry replacements who would complete their training and proceed overseas to the unit of ultimate assignment as a team. All team personnel possessed the same military occupational specialty (MOS). In grouping trainees into teams, the individual's choice was to be considered whenever possible. Membership in a team was an initial assignment and was not to preclude opportunities for individual advancement. Following such grouping, even bunk space was allocated so that team members were together both on and

off duty during the remainder of their 4 weeks' training.

Normally, 30 to 40 of these 4-man teams were to be organized as a carrier company on the date of graduation (sixteenth week). Carrier company cadres were to be provided by the continental army commander or the chief of the service organizing the company. Recommended cadre strength was 2 officers, 1 noncommissioned officer, and 1 company clerk in the company headquarters, and 1 noncommissioned officer per platoon and 1 leader's course graduate for each 4-man team. In practice the cadre seldom came up to this strength. Volunteers for cadre were to be used to the maximum extent possible and were to arrive at the training company 1 week prior to the organization of the carrier company (fifteenth training week). The original directive prescribed that the carrier company would depart for overseas not later than 2 weeks after graduation. In August 1954 this period was reduced to 2 days.

Thus a system with definite advantages was established. It reduces the time between trainee graduation and assignment to an overseas unit. It provides an opportunity for friendship and some team spirit to develop, starting in the thirteenth training week and lasting at least through 30 days after assignment to the ultimate overseas unit. A cadre accompanies the carrier company all the way to its overseas destination. Both the 4-man teams and the overseas receiving unit know the carrier company's destination and APO address well before the time of arrival.

There are also some disadvantages. The cadre personnel do not train the 4-man teams nor can they know them well prior to departure for overseas. The cadre probably will not remain with all of their 4-man teams after arrival at the overseas unit. Members of each 4-man team train together for too short a time prior to departure for overseas assignments. The

directive is considered too limited in its implementation, assuming that the advantages outweigh the disadvantages.

Overseas Receiving Unit

How did this system work from an overseas using unit viewpoint? The division took positive action to make sure the system was given a completely fair and unbiased trial. Plans were prepared for receipt of carrier companies and a directive was issued to subordinate elements covering their receipt, assignment, and reporting on 4-man teams well before the arrival of the first carrier company. This directive provided for a division officer to meet the carrier company at the Bremerhaven Port, brief the personnel, answer individual questions, and accompany it to the division replacement company at Bad Kreuznach. Thus this type of replacement became associated with "Hell on Wheels" (2d Armored Division) immediately upon debarkation. On arrival at the division replacement company the carrier company was inactivated, 4-man teams and cadre were assigned to armored infantry battalions, and a battalion officer escorted each battalion's group of men to the battalion home station. Insofar as possible the maximum number of 4-man teams out of each carrier company were assigned to one armored infantry battalion. Usually a carrier company could be split between two battalions. Within battalions each 4-man team was assigned to the same squad and billeted side-by-side. The integrity of 4-man teams was required for a minimum of 30 days except on prior approval of division headquarters. Following the initial 30 days, the division policy was to hold 4-man teams together to the maximum extent possible for the next 5 months. However, during this 5-month period individual team members could be reassigned outside of the battalion by division headquarters, or within the battalion by the battalion commander for cogent discipli-

nary, morale, or critical skill utilization purposes to meet valid operational requirements. Such reassignments were included in the monthly report which division required each battalion to submit on its 4-man teams. Upon deactivation the carrier company cadre was assigned to battalions and companies in proportion to the number of 4-man teams each received.

The 2d Armored Division's experience with this replacement system was generally good. First, it was a decided advantage to know of replacement arrivals more than 2 or 3 days in advance because assignments could be more efficiently planned and the time in the replacement company further reduced. Personal appearance, morale, and *esprit* were considerably better than had been experienced with individual replacements. One important improvement was that less "pirating" of the better men took place in the pipeline, between the Zone of Interior and the division. Finally, an additional 5 to 7 days were saved between arrival at Bremerhaven and company assignment, since carrier companies bypassed the replacement depot at Zweibrücken.

Trainingwise, personnel of the 4-man teams appeared to be better than individual replacements. Undoubtedly the better morale and *esprit* contributed to this general impression. These men settled down and got into the spirit of their units faster and more easily. From the very beginning they assimilated instruction considerably quicker than individually received replacements.

Discipline, likewise, was initially good and remained high. It is a trait of all armies that when an individual is away from the watchful eyes of his parents, his church, and his home community he tends to do things he would not otherwise do. Send him overseas without friends, particularly if he is disgruntled and lonely, and anything may—and quite often does—happen. On the other hand, if his morale

is high (this includes self-respect and personal integrity) he feels a sense of responsibility to his new unit and friends. For this reason he is far more inclined to live up to his own personal code of conduct, a code which generally is high enough for any of us to live by.

In many cases it was necessary to reassign some of the older men within a company in order to keep the 4-man teams together, but this caused little trouble.

The principal disadvantage of the system, correctible at division level, appeared to be a too rigid interpretation of the requirement that the 4-man teams remain together for a minimum of 30 days. This requirement should not prevent specialist training, schooling, or promotions.

There was no doubt, based on the 2d Armored Division's experience, that the 4-man team system is a decided improvement; however, it does not go far enough.

Platoon Packets

In March 1954 the division began to receive armored platoon packet replacements. These units were trained under a plan known as the Trainee, Transient, and Patient Plan started in October 1953. Under this plan inductees and enlistees without prior service were trained under Army Training Program 21-114 for the first 8 weeks, regardless of possible subsequent assignment. Additionally, those selected for armor were given 10 weeks of training under Army Training Program 17-600. The objective of the latter training was, first, to train the enlisted man to take his place in a tank crew as a fully qualified and proficient tankerman, MOS 1795, and second, to qualify him to enter combat as a replacement member of a tank crew with sufficient basis upon which to assimilate further training through combat experience and instruction from more experienced members of the crew.

It was originally intended that the platoon

leader and platoon sergeants train and ship overseas with their platoons. Tank commanders were graduates of a leader's course and were assigned to platoons just prior to the 10 weeks of branch training. In actual practice such leaders were not always available. The Department of the Army likewise was unable to continue providing platoon officers and noncommissioned officers.

Again, in anticipation of receipt of these platoons, division issued instructions to combat commands and tank battalions. While these packet platoons were not intended to be unit replacements, the division so treated them, insofar as platoon strengths on arrival permitted. As a result some very interesting facts developed.

The first 5 platoons each came with 1 officer platoon leader and at least 1 sergeant first class or master sergeant. They had trained with the platoon during at least a part of the branch 10 weeks of training. The total enlisted strength varied from 14 to 19 per platoon. Personnel within the tank battalions were reassigned so that the new platoon could be used as a tactical unit. Considering the monthly losses of personnel in the tank battalions, little difficulty was experienced in "ear-marking" a specific platoon to be taken over by the packet platoon of replacements. To man the new tactical platoon fully, additional personnel were assigned. Every attempt was made to fill the new platoon with men of as near the average caliber of that platoon as possible. The acting tank commander leader's course graduate was not displaced.

As prescribed by Seventh Army, comparative tests were administered to the packet platoon and a platoon of individually received replacements in the same battalion. The general training level of the packet platoon members in communications, tank gunnery, and basic military subjects was found to be considerably higher than for the individually received

replacements. Neither group had much knowledge of individual tank or platoon tactics—a fact which is understandable considering the small amount of unit tactical training prior to movement overseas. What the private first class leadership course graduate acting tank commander lacked in experience was made up in large measure by his *esprit* and will to make good. Experienced noncommissioned officer tank commanders would, of course, be preferred.

From the viewpoint of pride in personal appearance, morale, *esprit*, discipline, and adaptability to becoming a part of the outfit, they were far superior to the individually received replacement. They "belonged" from the beginning and obviously took pride in their responsibilities.

These platoons, while not combat ready upon arrival, were able to move, shoot, and communicate. The platoon and tank leaders could and did control their units. The basic organization, familiarity between individuals, and their ability to work together from the start were a decided advantage. Tactical training progressed rapidly after assignment with minimum disruptions because of their replacement status. A chain of command already existed within the platoon. In short, the individuals making up packet platoons were an essential and usable element of their companies almost as soon as they arrived.

The next three packet platoons received by the 2d Armored Division had been "made up" to a considerable extent just prior to movement overseas. Their officers and noncommissioned officers did not train with the platoons during the 10 weeks of branch training prior to shipment and, in some cases, both officers and noncommissioned officers did not come with each platoon. In some cases even the tank crews had been assembled just before departure.

Without going into the reasons for these differences in building the platoon, the re-

sults were significant. The same tests that had been given the first five platoons indicated that these three platoons were far behind the first group. The men were obviously not as closely knit, determined, and confident as the earlier ones had been. This fact was reflected in their dress, their discipline, and their slowness in learning small unit tactics.

If the 2d Armored Division's experience is representative, there is no question that the value of replacements to the using unit increases in the order: individual replacement, 4-man team, and packet platoon, providing the latter is assembled and trained as a unit during the 10 weeks' branch training before shipment overseas.

Conclusions

As stated before, no one replacement system appears best or even feasible under all conditions. Experience to date indicates a unit replacement system should be used whenever possible. Administratively it may be more complicated, but this certainly should not preclude its use. Relative costs are difficult to figure, but who can place a monetary value on man?

Under the present peacetime worldwide commitment of United States troops, composed largely of inductees with short periods of service, a unit replacement system should produce:

1. More efficient replacements.
2. A longer period of productive service for each replacement.
3. A reduction, at least in size, of intermediate replacement installations.
4. A much healthier attitude among replacements.
5. Greater respect for American military personnel among allied nations, resulting from better morale and discipline and thus fewer incidents.
6. Better public relations for the United States Army, stemming from more cheerful letters to family and friends.

Minimum, but highly essential, improve-

ments to the packet platoon plan described above should include:

1. Expansion of the system to full-strength platoons for all overseas tactical units.

2. Firm provisions for platoon, squad, and crew leaders in authorized grades for each platoon.

3. The requirement that the organic unit leaders train with their platoons from the eighth week of basic training at least.

4. To the maximum extent practicable, utilization of air transport from the United States training station (nearest airfield) to the overseas unit of ultimate assignment (again nearest airfield). If necessary, commercial airlines should be utilized. In the event of war this practice could produce a considerable increase in the national air transportable capability, which is almost mandatory.

5. The requirement that receiving overseas units meet arriving planes with their organic transportation loaded with the replaced platoon for airlift back to the United States and discharge. Prompt, courteous, and expeditious handling of returnees is equally important. Their last (and lasting) impressions of the Army are highly important to the Military Establishment. The inbound pipeline trip is a bit shorter than the outbound one, but is just as distasteful. The returnee is accepted at home as somewhat of an authority on the Army. Unfortunately, everyone tends to remember most recent events vividly, particularly if they are unpleasant.

Thus both from the standpoint of public opinion and future military service of the returnee—Active or Inactive Reserve, National Guard, or callup in case of war—those last few weeks of service are critical.

6. The association of each replacement platoon with a specific overseas unit as soon as formed, including patches, crests, weekly 5-minute orientations on the current activities of the overseas unit, its location, and, of course, history. The overseas organization might send copies of its weekly newspaper to its replacement units in the Zone of Interior. Individual correspondence with opposite numbers in the overseas platoon being replaced could be encouraged.

Imagine the morale, *esprit*, and competition within a training company composed of platoons destined for two predetermined divisions overseas, each wearing his respective patch and imbued with the history of his division. Or picture a company composed of platoons all going to the 2d Armored Division, some to the 29th Tank Battalion and some to the 57th Tank Battalion, all wearing 2d Armored patches but each with its respective battalion shoulder crests. Visualize the difference in morale of such a platoon leaving Fort Knox one day, landing at Rhine-Main in Germany the next, and sleeping in its own 57th Tank Battalion barracks that night in Mannheim, as compared with the individual replacement processed through normal pipeline procedures.

AUTHORS

Authors submitting materials to the MILITARY REVIEW are requested to forward manuscripts through the Security Review Branch, Office of Public Information, Office Secretary of Defense, The Pentagon, Washington 25, D. C.

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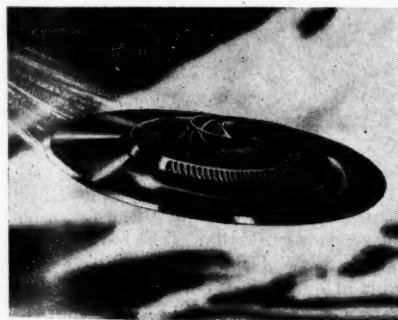
MILITARY NOTES

AROUND THE WORLD

UNITED STATES

'Flying Saucer'

The Air Force recently reported that it would soon have a vertical-rising, man-bearing plane resembling a flying saucer. It was reported that the aviation indus-



"Flying saucer" developed for Air Force.

try has reached a period of technology in which aircraft of unusual configuration and flight characteristics will begin to appear. The artist's conception of what the plane, being developed by a Canadian concern for the United States Air Force, will look like depicts a huge disk with a raised central plateau that is serrated on one side by many vanes. Surmounting the plateau is a transparent cockpit like that in a conventional plane. The Air Force is expected to be testing another

vertical-rising plane before the Canadian product is completed. The Air Force said that except for reducing runway requirements, it did not expect vertical-rising aircraft to have more outstanding military characteristics than conventional types.—News release.

Intercontinental Bomber

The giant *B-52 Stratofortress*, 8-jet intercontinental bomber, one of the fastest and largest ever built, is now being



B-52D and *B-47E* bombers are rolled out.

produced at two plants. The new plane, designated the *B-52D*, weighs more than 400,000 pounds and has provisions for larger fuel tanks suspended under the wings than earlier models. These planes

are said to be capable of striking anywhere on the globe and have a virtually unlimited range past the specified "more than 6,000 miles." A new *B-47E* medium bomber is shown beside the heavy bomber. —News release.

Wave-Testing Machine

A new wave-testing machine, believed to be the largest in the world, which will aid in devising possible methods of protecting coastal areas from hurricane damage, is being tested by the Beach Erosion Board of the Army Corps of Engineers. Waves are created by the machine in a concrete tank 635 feet long, 15 feet wide, and 20 feet deep. A wave-generating mechanism, including a vertical bulkhead 20 feet high which is pushed back and



New device tests wave forces and effects.

forth by two large crank arms, will produce waves 6 feet high midway along the tank, with a breaking height of 7 feet at the beach end of the tank. The new facility will permit large-scale tests of wave forces and wave effects, including those of hurricane proportions, and will provide basic data for application to

coastal and inland engineering problems with a degree of accuracy not previously obtained.—News release.

Miniature Tube

The world's smallest, self-contained magnetron tube, a must for the development of small radar sets which can be



Miniature tube developed for radar sets.

carried by troops, is shown compared with a golf ball. The new tube is 50 times more powerful than the Klystron tube which it was designed to replace. It weighs only 8 ounces and was developed by the Army Signal Corps Engineering Laboratories at Fort Monmouth.—News release.

Lensless Goggles

During Operation *Deep Freeze* the Navy expects to test some of its new cold weather equipment in the Antarctic. To be tested are lensless goggles which are transparent plastic, kidney-shaped cylinders fitted to a foam rubber frame. The cylinder circles the eyes and projects forward thus shielding the eyes from glare. Although the cylinder is open at its front end, the still air within the cylinder deflects the wind. The goggles were devel-

oped from the Eskimo practice of cutting star-shaped slits in goggles carved in whalebone. Conventional goggles fog up rapidly and interfere with good vision. New cold weather clothing also will be tested during the operation.—News release.

Reconnaissance Drone

A catapult-launched reconnaissance drone which has a speed of 228 miles an hour and a range of 50 miles is being tested at the Battlefield Surveillance Department, Army Electronic Proving Ground, Fort Huachuca, Arizona. The purpose of the *RP-71 Drone* is to make reconnaissance information available to the field commander within 1 hour after a



Battlefield information supplied by drone.

requirement for battlefield surveillance has been established. The drone has a wingspan of 12 feet and is 12 feet long. The device is controlled by a stick box held in the hand of a controller. With this box the drone can be banked and maneuvered. The drone is recovered by means of a parachute which is released by the controller after the mission is completed. The drone carries a camera which is remotely controlled by an operator on the ground.—News release.

Rocket Launchers

Mounted on the tip of each wing of the *Scorpion F-89D* all-weather interceptor are twin pods which serve as launching

platforms for 2.75-inch, air-to-air rockets. One projectile is capable of destroying the biggest bomber. The plane carries a total of 104 of these rockets which are fired electronically once the *Scorpion* has made radar contact with its target. They spew forth from the launcher in shotgun fashion covering an area larger than a football gridiron. These planes will be assigned to aerial guard duty along the polar



Rocket launching pods carry lethal weapons.

air routes. Twin turbojet engines permit the plane to climb to more than 45,000 feet within minutes. The plane has a speed of 600 miles an hour and is manned by a crew of two.—News release.

Lightweight Antitank Gun

A 90-mm self-propelled gun, which has a tanklike body with a hull of lightweight metals, has been designed to meet military requirements for a light, highly mobile, hard-hitting, self-propelled antitank gun for use in the assault phase of airborne operations. The *T-101's* lightweight construction enables it to traverse muddy,

marshy, or sandy terrain and snow, and permits it to be airdropped. Its armament, a 90-mm gun mounted above the hull without a turret, is a powerful anti-tank weapon. It carries a crew of three men and is powered by a 6-cylinder, air-cooled, ordnance-continental engine with a



Lightweight gun for airborne units tested. maximum of 205 horsepower. The vehicle is capable of speeds of 30 miles an hour.—News release.

Army Cuts

In an effort to get down to its strength of 19 divisions by summer the Army has announced additional cuts in its troop strength. It was first announced that the 1st Cavalry Division, stationed in Japan, would be reduced by approximately one-third. This was to be accomplished by taking away all but a token unit of the 7th Cavalry Regiment and the 77th Field Artillery Battalion which had been integral parts of the division since the early days of World War II. Later it was announced that the 508th Airborne Regimental Combat Team will be withdrawn from Japan to Fort Campbell, Kentucky, in June and that the 75th Regimental Combat Team, now on Okinawa, will be disbanded in the summer. Additional cutbacks announced also include deactivation of the 23d Infantry Division, whose headquarters are at Fort Amador, Canal Zone. The 65th Infantry Regiment of this division, sta-

tioned in Puerto Rico, will be disbanded but the remaining two regiments will be retained as regimental combat teams. Disbandment of the 75th Regimental Combat Team will leave no Army infantry on Okinawa but the gap will be filled by the transfer from Japan of additional units of the 3d Marine Division. Part of this division is already on Okinawa. Previously the Army had announced the deactivation of the 71st Infantry Division next summer. The Army's strength in Korea, which consists of the 7th and 24th Infantry Divisions, was not affected by the changes. The Army also maintained its five divisions, plus strong supporting units, in western Europe.—News release.

'Electric Log Stacker'

Designed to mechanize today's primitive methods of loading and unloading logs, a machine known as the "Electric Log Stacker" has been developed. The machine has two 10-foot spears which are inserted



Machine to make stacking of logs simple.

between a stack of logs. Two clamps lock around the logs to hold them on the spears. The machine is capable of lifting 50,000 pounds at one time.—News release.

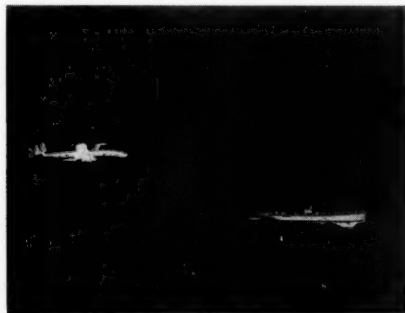
Staff Changes

The Department of the Army has announced an "internal reorganization" of the general staff which puts an end to the "G-staff" and replaces it with a functional

organization on the deputy chief of staff level. The reorganization will provide for the equivalent of five deputy chiefs of staff. They are the Deputy Chief of Staff for Military Operations, Deputy Chief of Staff for Personnel, Deputy Chief of Staff for Logistics, Comptroller of the Army, and Chief of Research and Development. It was explained that this organization was not firm at this time and may be changed. It was not determined what G1 and G3 functions, if any, would be shifted between the offices of the deputies who are taking over the responsibilities for personnel and for plans. Five other offices in addition to those of the deputies will

Search Vessels

The Navy's newest air early warning aircraft, the WV 2, is shown flying over one of the Navy's new ocean radar station ships, the *USS Skywatcher*. Both the



Radar vessels guard American coastline.

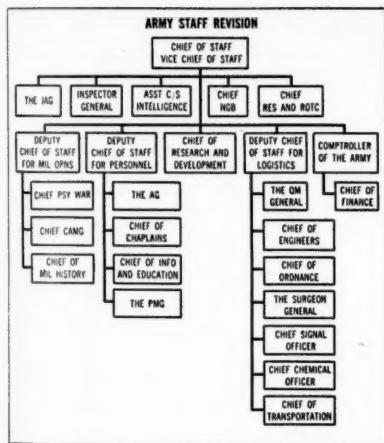
surface and air vessels fulfill much the same purposes of searching electronically for enemy air, surface, and undersea craft.—News release.

Modify Uniform

The Army has decided to modify the trim on the new green uniform for officers. This uniform becomes optional for off-duty wear after 1 October 1957. A ¼-inch wide black braid stripe on the sleeve cuffs and a 1½-inch wide black braid stripe will be added to the outside seams of the trousers. The black braid trim is the only distinguishing feature between the officers' and enlisted men's uniforms. General officers will wear a 1½-inch black braid sleeve stripe and the trouser stripe will consist of two ½-inch wide black braid stripes spaced ½ inch apart on the outside seam.—News release.

Rocket Development

In the Army's stepped up program for guided missile production, the Army's Redstone Arsenal has announced the development of a new 2-inch aircraft rocket, improved and more accurate bazooka anti-tank ammunition, and refined versions



report directly to the Chief of Staff. They are the Judge Advocate, Inspector General, Chief of Intelligence, Chief of the National Guard Bureau, and the Executive for Reserve and ROTC. Under the plan the Chief of Intelligence remains an assistant chief of staff but this is expected to be temporary as the entire intelligence organization is under study on the Department of Defense level. This is the fifth reorganization of the Army General Staff since World War II. Other changes were in 1946, 1948, 1950, and 1954.—News release.

of the *Honest John* field artillery rocket. The new 2-inch aircraft rocket has folding fins which spring out from the tail when the rocket is fired and help stabilize it in flight. A rocket designed for psychological warfare teams carries leaflets over enemy lines. It is launched from a light disposable launcher made of plastic. Both rocket and launcher weigh only 35 pounds. There is also the rocket named after the arsenal, the *Redstone*. It is reported to have a range of 200 miles, but has shown promise of moving into the midrange class of 1,000 miles or more.—News release.

New Hull Design

The Navy plans to build an atomic submarine with a new hull design expected to give it superior performance to the two present nuclear vessels. The hull will be patterned on that of the high speed test submarine, *Albacore*, which reportedly has exceeded the underwater speed of the atom-powered *Nautilus*, said to be in excess of 20 knots. The *Albacore* has conventional diesel engines. The new design will be used in the construction of three submarines having diesel engines. The *Albacore* has a fish-shaped body with a sharp nose, blimplike tail, and airplane type controls. It uses a single, 5-blade propeller. The design offers the advantages of greater range, greater underwater speed, and improved maneuverability at approximately the same cost. The new hull will be shorter and thinner than the conventional attack submarines. The new submarines are to be equipped with safety seat belts like an airplane for the operators.—News release.

End SCARWAF

The Secretary of Defense has acted to end the 8-year controversy between the Army and Air Force over SCARWAF (special category Army with Air Force). The Air Force has been ordered to return 24,000 engineers provided by the Army

and at the same time the Secretary made the Army directly responsible for engineering work at airbases. Under SCARWAF the Air Force has had 24,000 men for this engineering work, but the Army has been told to do the job with 7,500 men. It was pointed out that at the beginning of mobilization and war the need for construction troops is high in the Air Force and low in the Army but as time passes the situation is reversed. The idea of the new plan is that instead of having construction troops assigned to the two services separately in numbers to meet the maximum requirements of each, the total number should not exceed what both services will require at any one time after mobilization starts. With this directive plans to transfer SCARWAF personnel to the Air Force have been canceled.—News release.

JAPAN

Jet Air Force

Another step toward the establishment of a jet air force in Japan has been taken with the announcement that the country has formed its first regular jet training wing. The new wing will have 3 to 5 squadrons staffed by pilots who have had experience in jets and propeller-driven planes made available by the United States. About 50 Japanese have qualified as jet pilots. This new training scheme forms the nucleus of an air force planned to have about 27 squadrons with nearly 800 combat planes and 500 more for auxiliary purposes. Japanese manufacturers operating on licenses from the United States are ready to begin building jet trainers and later the *F-86 Sabre*, which will have American-built engines.—News release.

Open Dam

The huge 492-foot high Sakuma Dam, one of the 10 largest in the world, recently began taking in water from the Tenryu River. It has a 320-million ton

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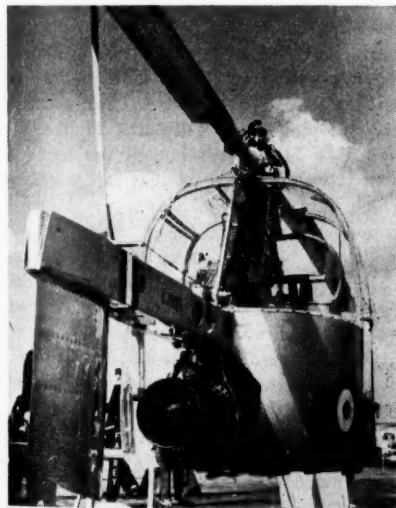
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capacity reservoir. The dam was constructed largely with American machinery at a cost of 55 million dollars. It required 3 million Japanese man-days of work in 31 months. By next May the dam will generate 350,000 kilowatts of power, irrigate paddies, and curb floods.—News release.

GREAT BRITAIN

Light Helicopter

An ultralight helicopter powered by a compressed air generator which supplies compressed air to pressure-jet units at tips of a 2-blade rotor was displayed in



Ultralight helicopter displayed at show.

Great Britain recently. The plane which can be transported on a 3-ton truck has been flown. The pilot and observer sit facing forward or aft with a 360-degree field of vision.—News release.

Research Rocket

The design of a rocket which British scientists will use for research in the upper atmosphere has been completed. The rocket will be about 25 feet long and 17

inches in diameter. The rocket is to be powered by a solid propellant motor and the first trial firings are expected to take place at Woomera, Australia, in the second half of the year.—News release.

Smallest Jet Plane

With a wing area of only 65 square feet, the SK 1 is claimed to be the smallest jet plane now flying. Seats are arranged in tandem, with the pilot occupying the front position. The essential controls, however,



Smallest jet plane shown in Great Britain.

are duplicated in the rear cockpit, allowing the machine to be used for elementary jet training. A maximum speed of 332 miles an hour and an altitude of 25,000 feet are claimed. It is the first jet sports plane to be built in the United Kingdom and the first high-performance light aircraft made in the country since the war. It weighs less than the lightest car and the price is less than that of any other jet aircraft. It has a fully retractable undercarriage, air brakes, braking parachute, and oxygen supply.—News release.

'Foreign Legion'

The Army League, a nongovernment group interested in promoting the efficiency and welfare of the Army, has proposed that Great Britain increase the strength of her Army by recruiting a foreign legion on the French model. The group said the

hydrogen bomb reduces the risk of a world war but since the weapon would be used only as a last resort it would not necessarily eliminate the risk of local and limited acts of aggression. The group said that following the last war a foreign legion would have been easy to recruit but now any beginning would have to be on a modest scale.—News release.

Speedy Bomber

In superpriority production for the Royal Air Force is Great Britain's latest 4-jet, crescent-wing bomber, the *Victor*. Its four



Superpriority production for the *Victor*.

Sapphire engines give it a loaded cruising speed of over 700 miles an hour at altitudes of 55,000 to 60,000 feet.—News release.

USSR

Complete Cut

The 640,000-man cut in the Soviet armed forces, promised last August, has been completed according to Radio Moscow. The ex-soldiers have been transferred to ag-

riculture according to the report. This confirms Western speculation that the chief purpose of the cut was to aid the Government's big drive to increase Soviet agricultural production.—News release.

Striking Force

The Soviet Union is reported to be producing war planes in 360 factories scattered from the Polish border to the Far East. The report, appearing in *Jane's All the World's Aircraft*, mentioned especially the *Type 37* medium twin-jet bomber believed capable of carrying an atom bomb. This plane was unveiled in June. The Soviets are said to have an even more advanced development of the *MiG-17* jet fighter, whose maximum speed is estimated to be in excess of 745 miles an hour. The performance capabilities of the Soviets' new warplanes are estimated to be commendably high according to the publication. It was emphasized that the extent to which they were combat worthy was still in doubt because the Soviet method of assessing a plane's fitness for production was not known. It is estimated that the *Type 37* heavy bomber has a maximum speed of 559 miles an hour, a range of 7,100 miles, and a maximum bombload of 19,845 pounds. Among other new planes the Soviets are reported to have: a new, single-jet, single-seat fighter with a wing sweepback of about 70 degrees; a large swept-wing bomber powered by four turbo-prop engines; a wing-jet night or all-weather fighter; and a small rocket-propelled interceptor for target defense duties in the Soviet Union.—News release.

Largest Powerplant

Work has been started by the Soviet Union on what is intended to be the world's largest hydroelectric station, a 3-million kilowatt installation on the Angara River in eastern Siberia. The dam is reported to be located near the town of Bratsk, about 200 miles north of the city of Ir-

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kutsk. Its power is intended to serve as the basis of industrialization of eastern Siberia and as the key element in a power network eventually to cover all of Siberia. In the way of comparison the Grand Coulee Dam on the Columbia River has almost 2-million watt capacity. Work on the entire Bratsk installation is expected to be completed by 1960. A smaller station is also under construction on the Angara River at Irkutsk. This will have a capacity of about 1 million kilowatts. Actual construction work on the project, which will create a lake of about 2,000 square miles, is expected to begin in the spring. Large amounts of equipment are being assembled there now. Another hydroelectric project at Kuibyshev on the Volga River is to open shortly. This is said to have a capacity of 2 million kilowatts.—News release.

WEST GERMANY

Build Jets

French manufacturers have sold West Germany licenses to build a French training jet plane for the new German Air Force it was announced recently.—News release.

COMMUNIST CHINA

Give Base

The Chinese Communists have turned over the Chu Shan Islands to the Soviet Union for use as a naval base according to the official Chinese Nationalist Central News Agency. The Chu Shans are 90 miles south of Shanghai and 310 miles north of Taiwan. This base will give the Soviet Union a fueling station in the East China Sea, particularly for submarines. It could be used as a base for possible operations against the United States and Chinese Nationalist Navies. It was reported that six Soviet submarines were already based in the Chu Shans and that the airstrip on Tinghai, the main island, is being converted into a Soviet base under the direction of Soviet technicians. It was said that

Soviet planes were already at this base. The Chinese Communists are building a railroad spur from Ningpo to the coast opposite the Chu Shans as an overland supply base. None of these reports could be confirmed.—News release.

ROMANIA

Industrial Expansion

Along with the vast industrial strides that are reported to have been made in Romania is the announcement that the country expects to build within the next 5 years an electric power station using atomic energy. It was reported that Romania's foreign trade has increased by 190 percent during the past 5 years but no over-all figures were given. Steel production was said to be almost 800,000 tons this year, compared with about 284,000 tons in 1938. Crude oil production was put at more than 10.5 million tons in 1955 compared to a prewar production of 8 million tons.—News release.

CANADA

Swift Destroyer

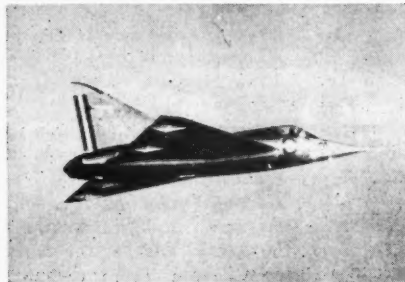
A fast, powerful, antisubmarine vessel that was designed and developed in Canada has drawn the praise of members of the Atlantic Alliance. The ship is the first of a class of 14 destroyer escorts on order to help Canada fulfill her antisubmarine role in the integrated defense system. This is a break with the tradition of having Canadian ships either built in Great Britain or constructed in Canada to Royal Navy specifications. The Royal Canadian Navy charted production of a ship that could fight in all kinds of weather, particularly the Arctic, and yet the craft had to be highly livable. The ship built, the *St. Laurent*, cost 15 million dollars, has an estimated maximum speed of 40 knots, displaces 2,600 tons, and is 360 feet long. Her armament consists of acoustic torpedoes, batteries of 3-inch, 50-caliber, radar-controlled guns, and *Squid* mortars

that lob lethal patterns of projectiles at underwater targets with great accuracy. The *St. Laurent* is almost completely air conditioned and can seal herself against atomic fallout and germ and chemical attack. Designed to withstand severe damage, the ship has new type bulkheads, five separate sources of electricity, and extra steel sheathing at the waterline. Each piece of equipment has been shock-tested under conditions that simulated near miss bombing and all welding was checked by X-ray. The anchor has been recessed into the hull to minimize spray, a key factor in the buildup of tons of ice. Her operational range is a secret, but the ship carries enough food for 90 days, compared with the 14 days' supply of World War II escort vessels. Unit construction was employed in the building of the ship. The ship was built in 72 independent sections ranging in size from 5 to 26 tons.—News release.

FRANCE

Lightweight Fighter

Flight testing of the *MD-550*, a single-seat fighter about which very little has been revealed, is being continued. This light delta plane is powered by two 1,764-



Flight testing of light fighter continues.

pound thrust *MD-30 Viper* jets which previously had not been fitted with afterburners. An *SEPR* rocket booster is being developed for this aircraft.—News release.

All-Weather Fighter

Another member has been added to the growing *Mystere* aircraft family. It is the *Mystere IV N* all-weather fighter. The plane is a slightly modified version of the family with two seats and a nose radar installation like the *F-86D Sabre*. The *Mystere* family is fitted with the "flying tail" which some experts consider essential for



All-weather fighter continues flight tests.

combat at transonic and supersonic speeds. No details on the plane were released.—News release.

Bazooka Missile

The French are reported to have used the bazooka principle to develop a true guided missile launcher and have designed a guided rocket that can be used by every infantryman. The French missile is reported to be unique in its design because it is sustained during flight aerodynamically, meaning that the missile is given lift during flight by so-called coleopter rings or wings. The missile looks like a barrel wrapped around a tube. The barrel part, in addition to serving as a wing, performs the function of an outer housing for a ramjet engine which gives the missile supersonic speed. The missile is fired from a bazooka type launcher which allows the missile exhaust to escape out the aft end and is thus recoilless. A booster missile fires the coleopter missile to air-launching speed, then drops away.—News release.

FOREIGN MILITARY DIGESTS

The Battle of Borodino

Digested by the MILITARY REVIEW from an article by
Captain N. A. Shackleton in the "Canadian Army Journal" April 1955.

The direct consequence of the Battle of Borodino was Napoleon's causeless flight from Moscow, his return by the old Smolensk road, the ruin of the invading army of five hundred thousand men, and the downfall of Napoleonic rule, on which, for the first time at Borodino, was laid the hand of a foe of stronger spirit.—Count Leo Tolstoy, War and Peace.

THE Battle of Borodino was perhaps the most significant action of the French invasion of Russia in 1812. History records few battles waged with comparable ferocity and resulting in such bloody carnage. Its far-reaching consequences included the subsequent demoralization, disintegration, and withdrawal of the French forces from Russia.

The battle began at dawn on 7 September 1812 and by nightfall the scene of the conflict, which was little more than 2 miles square, was littered with the remains of more than 30,000 Russian and 25,000 French troops. Despite the incredible slaughter the battle must be declared a

draw, neither side at the end of the day being capable of imposing its will upon the other. If for no other reason, the Battle of Borodino merits careful study for it is an outstanding example of the fortitude, fighting spirit, and endurance of the common soldier of that time.

In order to appreciate the strategical importance of the operation and its effects on the fortunes of the invading army, it is necessary to review the events leading up to Borodino and the circumstances in which the French Army found itself prior to the battle. Napoleon had crossed the Russian border in June with 360,000 troops, half of whom were French and the remainder drawn from more than a dozen countries and states of Europe which were allied with or under the domination of France.

The preparations for the campaign began in 1811 and contrary to popular opinion were elaborate and thorough in practically every detail. Vast supplies of food, ammunition, stores, and equipment were gathered and a transport organization, which included 50,000 horses and draft

animals, was set up to maintain and supply the needs of the advancing armies. The tremendous force contained a high proportion of skilled tradesmen; these blacksmiths, farriers, wheelwrights, stonemasons, carpenters, bakers, harnessmakers, engineers, and even cartographers to produce maps of the country were an integral part of the army organization.

The bulk of the army, however, consisted of the usual elements: infantry, cavalry, artillery, and engineers. The French infantry was organized into companies of 140 officers and men. Each man carried a musket and 50 to 60 rounds of ammunition which combined with the rest of his kit weighed about 55 pounds. The artillery had a variety of equipment and was divided into foot, field, and horse batteries equipped with either 4-, 6-, or 12-pounder guns and 24- or 32-pounder howitzers. In addition there were detachments of regimental artillery in each battalion with four to six 3-pounder guns. Much of the ammunition was exploding shell. The French cavalry was formed into squadrons of 250 men and armed with a combination of the lance, saber, sword, pistol, or carbine. The engineers of Napoleon's army had been trained to a high degree of efficiency and their chief role in Russia was the construction of bridges. For this purpose the army had been equipped with two parks of a hundred pontoons each and the necessary accessories. Two thousand horses were allotted for moving this material.

Seeks Battle

Since the beginning of the campaign it had been Napoleon's aim to force a decision with the Russians and destroy their entire force in one massive blow. He had been prevented from achieving this aim by the continual retreat of the Russians who withdrew their forces more or less intact thus avoiding large-scale engagements and suffering relatively few casualties.

Despite the slow and awkward mobilization and training of the Russian reinforcements, new levies of recruits were already reaching the front. It was, therefore, imperative that Napoleon take advantage of his temporary superiority. He had to act quickly to crush the Russian Army before it gathered strength in its withdrawal and because of its shortened line of communications. In a sense Napoleon was racing against time, for the French Army was at the end of a slender line of communications 500 miles long and was being depleted at an alarming rate each day. In addition to the numerous casualties sustained in the fiercely contested rearguard actions of the Russians, there were tremendous losses of manpower due to other causes. Foraging and looting practices resulted in several hundreds of daily casualties inflicted by the Cossacks who harassed the flanks of the French Army. Exhaustion and sickness brought on by forced marches and scanty food took a great toll, and stragglers and deserters imposed an equal if not greater loss than legitimate battle casualties and disease. Extremely harsh measures, including summary execution, failed to halt these defections, and straggling was a major problem throughout the campaign, especially in the conscripted non-French element of the army.

The cumulative effect of these depletions in Napoleon's striking power can be gauged by reference to the strength of his army at various stages of the invasion. The *Grande Armée* crossed the Niemen River with a fighting strength of 360,000 men. Two hundred miles east at Vitebsk it had been reduced to 240,000. On setting out for Smolensk it had been further diminished to 180,000; and after the fighting in the Smolensk area it had dwindled to 150,000. A roll call at Ghatsk, about 20 miles west of Borodino, on 2 September revealed that no more than 135,000 troops would be available for battle on 7 September.

Not only had the army suffered great reduction in numbers, but there was also serious deterioration in other respects. Short rations caused troops to loot and maraud on their own, to the detriment of order and discipline. Clothing and boots were wearing out and the rigors of the long marches had lowered the mental and physical stamina of the army.

As the line of communications was extended, the flow of supplies became progressively smaller. The inadequacy of the maintenance system can be blamed partly on the activities of the Cossacks; but chiefly it can be attributed to the sheer magnitude of the task of sustaining such a large force over the vast distances and poor roads of Russia. The dishonesty and ineptitude of many administrators in the rear area, together with the depredations of the hordes of stragglers who preyed on the line of communications throughout its entire length, were also major contributions to the breakdown.

When all these factors are considered along with the political implications, it is clearly evident why Napoleon was anxious to seize the opportunity to do battle at the earliest moment, although the tactical situation was not of his choosing nor to his liking.

The Battlefield

The accompanying map (see page 77) portrays the battlefield of Borodino in sufficient detail to illustrate the course of the action without lengthy explanation of the ground. The main axes of advance of the French Army were the two post roads running east and west through Borodino and Utitz, these villages being $2\frac{1}{2}$ miles apart. The Kolotza River in the vicinity of Borodino was passable in many places, but the French sappers constructed five bridges west of the village to facilitate the movement of troops during the action. A minor feature which hindered but did not prevent the passage of organized bodies of troops was the small stream flowing

from south to north from Semenovskoi village into the Kolotza River west of Borodino.

For 3 to 4 miles around Borodino the ground was characterized by few prominent features. There were well-defined gullies eroded by the numerous small streams and there were patches of woods. Northeast of Borodino in the triangle formed by the junction of the Kolotza and Moskva Rivers was a large marsh which had some tactical significance; the woods north of the village of Utitz also played an important part in the progress of the battle. The plateau southeast of Borodino, which was one of the major topographical features in the area, was little more than 30 feet higher than the surrounding country. The villages and hamlets were for the most part of primitive log construction and of no tactical significance. Most of the buildings were razed either before or during the battle.

The Russians had prepared a number of earthworks which were established as artillery and infantry strong points along their front. These consisted of redans, or embankments, constructed in the shape of arrowheads and open at the rear. Three of these earthworks were built southwest of Semenovskoi on the small hill north of the woods. In many accounts of the battle these defensive works are referred to as the *flèches* (arrows).

Farther north and immediately southeast of Borodino on the high ground was the large defensive work which the French called the "great redoubt" and which the Russians referred to as "Raevski's redoubt," the latter name being that of the Russian commander responsible for its defense. Here again we have an earthen embankment open at the rear but larger than either of the three redans to the south. The great redoubt was defended by at least 20 cannons and 4 battalions of infantry. To the east along the new post road and just in front of Gorki was still

another earthwork which covered the road and was protected by the Kolotza River to the northwest; this defensive work played a very minor part in the battle.

Shevardino, a small hill midway between the old and new roads and about 1½ miles southwest of Borodino, was the site of a defensive work which had been captured from the Russians on 5 September. It is here that Napoleon established his headquarters and directed the battle, although much of the field was not visible from this point.

Troops Involved

There are minor differences of opinion concerning the number of troops who took part in the battle, but the variations are so slight as to be of little consequence. The figures quoted for the Russian troops are those of Tarle; those for the French come from several sources and may be regarded as an average of a number of estimates. Kutuzov, the Russian commander in chief, had a total of 127,800 men and 640 guns; this force included 17,000 first-class regular cavalry, 7,000 Cossacks, and a levy of 10,000 militia from Moscow and Smolensk.

Except for the militia, who were raw recruits, the Russians had an advantage in some respects over the French. The horses of their cavalry and artillery were in good condition, and because of the shortened line of communications the rank and file fared better in the way of food and supplies. There is also reason to believe that the Russians had made more thorough preparations for the evacuation of casualties. The quality of the Russian artillery has been the subject of some debate; however, there is little doubt that they must have enjoyed an advantage in mobility because of better horses. This contention is supported by the fact that they lost so few guns during the retreat.

The Russian Army consisted of 7 infantry corps, 4 corps of cavalry, and the Moscow Militia. This force was divided into

the First and Second Armies under Barclay and Bagration, respectively. A glance at the map will show the disposition of this force before the battle and the boundary between the two armies. The First Army was deployed as follows: Baggovut's II Corps held the right flank which rested on the high ground south of the marsh; next was Tolstoi's IV Corps just north of Gorki; and the left flank of the First Army was held by VI Corps under Docturov.

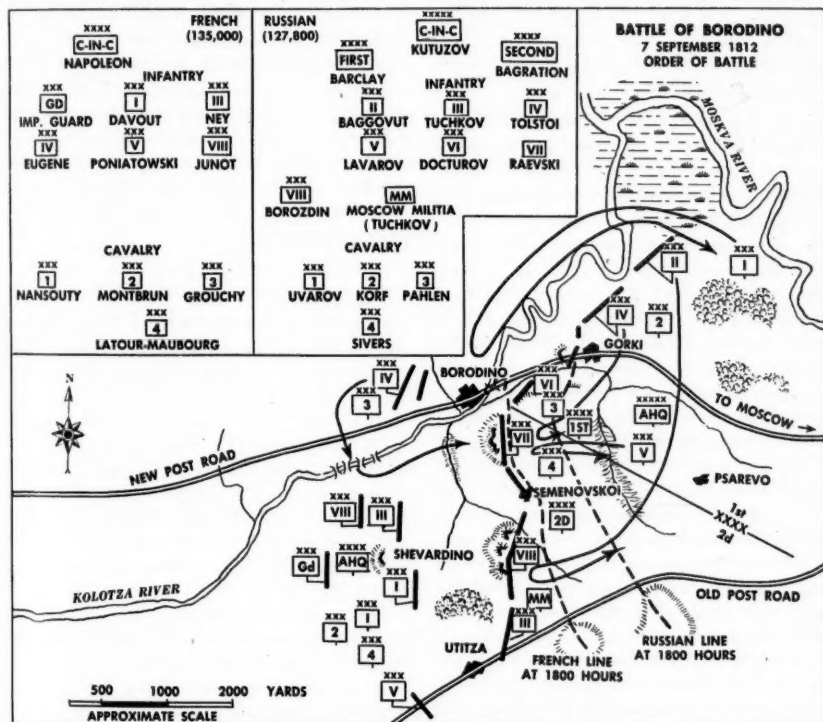
The right flank of the Second Army consisting of Raevski's VII Corps was responsible for the great redoubt and the line running south to the village of Semenovskoi. Borozdin's VIII Corps garrisoned the three redans southwest of Semenovskoi and extended south toward the woods. The line from the north edge of the woods to the south of the Old Road behind the village of Utitz was the responsibility of Tuchkov's III Corps and the Moscow Militia. The four cavalry corps were stationed in the rear of the infantry: Uvarov's 1st Cavalry was behind Baggovut and spread out to the extreme right flank; Korf's 2d Cavalry was behind Tolstoi; Pahlen's 3d Cavalry behind Docturov; and Sivers' 4th Cavalry was disposed in support of Raevski at the great redoubt. The army reserve, under the direct control of Kutuzov, comprised the V Corps commanded by Lavarov; this corps with 240 guns was posted in front of Psarevo.

Every corps in the line had its chasseur regiment (light infantry) thrown out in front and there were Cossack and cavalry patrols in squadron and regimental strength on the flanks. Borodino was garrisoned by chasseurs of the VI Corps. The Russian headquarters was stationed on the high ground between Gorki and Psarevo, where Kutuzov could overlook almost the entire field.

Command and control of the Russian forces must have been hampered to some extent by a further subdivision of authority between the army and corps level.

Miloradovich commanded the group comprising II and IV Corps and the 1st and 2d Cavalry Corps; Docturov the VI Corps and the 3d Cavalry Corps; Gortchakov the VII and VIII Corps and the 4th Cavalry Corps; and Tuchkov the III Corps and Moscow Militia. This multiplicity of generals and headquarters must have proved superfluous because the commanders of both armies, Bagration and Barclay, sent

defense which were recognized and partially remedied early in the battle. The bulk of the Russian force lay on the right, extending from the area of the great redoubt to some distance north of the New Road. The left flank from the three redans to Utitzza was defended by two corps and the Militia only; this was the sector most vulnerable to a turning movement by Napoleon.



fight more than a stubborn defensive battle. From some accounts it appears that he took little more than a passive interest in the action and confined his directions to the acquiescence or denial of the requests of his two army commanders, Barclay and Bagration. This apparent indifference may be explained by the fact that Kutuzov, in the opinion of some historians, gave battle at Borodino against his better judgment, and that his reluctant decision to stand and fight was the result of pressures exerted by influential army officers and court officials.

Napoleon had 135,000 troops and 587 guns at Borodino; included were 32,000 cavalry whose superiority in numbers over the Russians hardly compensated for the inferior condition of their horses. The army was organized into 5 infantry corps, 4 cavalry corps and the Imperial Guard. From right to left the French Order of Battle was as follows: Poniatowski's V Corps was astride the Old Road facing Utitza; Davout's I Corps stood opposite the three Semenovskoi redans, which were partly obscured by the woods; Ney's III Corps continued the line to the Kolotza River; and north of the river was the IV Corps under Eugene. Three cavalry corps—the 1st, 2d, and 4th under Nansouty, Montbrun, and Latour-Maubourg, respectively—were stationed in the rear of Davout and commanded by the Chief of Cavalry, Murat. The 3d Cavalry Corps, under Grouchy's command, was north of the Kolotza with Eugene. Junot, commanding the VII Corps, supported Ney; the Imperial Guard remained in reserve in the area of Shevardino.

Napoleon issued a brief order before the battle wherein he outlined the fire plan for the initial attack and the instructions to those corps who were to engage the enemy first. One hundred guns were to concentrate their fire on the Semenovskoi redans; the V Corps was to advance and turn the Russian left flank; and at the

same time I Corps supported by III Corps was to assault the redans. Eugene's IV Corps was ordered to take Borodino, cross the river, and assault the heights. Napoleon's order then stated that further directions would be given according to the circumstances.

It is to be expected that in a battle of such violent intensity, when impressions were formed in the heat of action, there should be a diversity of opinion as to the details of minor tactical maneuvers. However, most narrators are in accord when relating the major events of Borodino, and on the whole the accounts of the witnesses generally substantiate each other. In the interests of clarity and space this résumé of the battle is confined only to the actions of the various corps or, in some cases, divisions.

The Battle

In accordance with Napoleon's orders the battle commenced with a 100-gun barrage against the Semenovskoi redans. The divisions of Davout's I and Ney's III Corps moved forward and were soon engaged with the Russians of Borozdin's VIII Corps. At the same time Poniatowski's V Corps advanced to and captured Utitza which was lightly held. Eugene's IV Corps rushed Borodino under the cover of a heavy mist, crossed the river by the bridge east of the village, and assaulted the heights.

The reaction of the Russians was vigorous and immediate: Davout and Ney who had captured the redans were driven out, only to attack again and be repulsed by a counterattack supported by Sivers' 4th Cavalry. Bagration then reinforced the redans by a division of Tuchkov's III Corps. On the left flank Eugene's IV Corps was forced to withdraw from the south bank of the Kolotza and take up a defensive position in Borodino; the bridge at this place was subsequently destroyed.

On the right flank Poniatowski was held up by the heavy fire from Tuchkov's ar-

tillery which was positioned on the knoll east of Utitzza. He was also being subjected to a scathing fire delivered by the Russian chasseurs in the woods north of the village. Although he brought up 40 guns and engaged Tuchkov from a position east of Utitzza, Poniatowski's activities in this sector were confined for the next couple of hours to skirmishing and to exchanging artillery fire with the Russians.

Meanwhile, on the left flank Eugene's IV Corps, being unable to advance because of the river, withdrew, leaving one division and the Italian Guard to garrison Borodino. After placing a body of cavalry to watch the left flank, he moved IV Corps and Grouchy's 3d Cavalry Corps across the engineer's bridges west of Borodino and then into a position in front of the great redoubt south of the Kolotza. It was now 0730 and Kutuzov, realizing that the bulk of the French Army was being concentrated against his center and left, dispatched II Corps under Baggovut from the right flank to reinforce Bagration. This corps arrived at 0900 and Bagration detached one of its divisions to replace the one taken from Tuchkov earlier in the morning; the remainder of II Corps was sent to reinforce the Semenovskoi redans.

The battle for the redans was still raging and the earthworks were continually changing hands. A threat to Davout's right flank had developed from the Russian sharpshooters concealed in the Utitzza woods to his south. Being fully occupied with the struggle for the redans, Davout was unable to meet this diversion and Napoleon was obliged to detach a division from Junot's VIII Corps in an effort to dislodge the Russians from this sector. Later in the day this division was joined by the balance of VIII Corps.

Meanwhile, Poniatowski had succeeded in taking the knoll east of Utitzza, but in the face of repeated counterattacks by Tuchkov was compelled to retire again to

the village. Eugene's IV Corps at the great redoubt had met a similar reverse, and after occupying the earthwork for a brief moment was driven out by a fierce counter-attack.

About 1000 a very powerful assault was made on the Semenovskoi redans. This attack proved decisive and forced the Russians to withdraw. It was carried out by Ney's III and Davout's I Corps, reinforced by Junot's VIII Corps, two corps of cavalry, and the supporting fire of 250 guns. The artillery support was subsequently increased to 400 guns, and the great weight of metal which the French poured into the confined space of the earthworks inflicted terrible casualties among the Russian defenders who were massed in close order inside and to the rear of the position. Two to three hundred shells and cannon balls would fall into the area in 1 minute, and as many as 10 men might be killed by the bursting of 1 shell. Bagration, the Russian Second Army Commander, was mortally wounded in this action; his bravery and outstanding leadership had been a source of inspiration to his army throughout the battle. This loss profoundly weakened the morale of the Second Army and it is likely that it precipitated the withdrawal from Semenovskoi. The French casualties in this phase of the battle had also been severe because the Russians had massed almost 300 artillery pieces in the defense of the redans, and their accurate fire devastated the tightly formed columns of the French divisions. In this action, moreover, many divisional and regimental commanders had become casualties, and Ney himself had been wounded four times in the course of the morning.

After clearing the village and the redans, the French endeavored to follow up the Russian withdrawal and with the aid of their cavalry made a vigorous effort to turn the movement into a rout. The Russians, however, refused to panic and, main-

taining good order, halted at the shallow ravine in front of the Psarevo plateau and doggedly resisted all attempts to move them. The French cavalry attacks were broken up by the Russian squares and the contest in this area dwindled into a heated exchange of gunfire. Ney and Davout, appreciating that their gain in this sector had not been decisive, asked Napoleon to make the Imperial Guard available; the request was refused. By noon the battleline of the Russians was concave, the flanks being held by Docturov's VI Corps on the right and Tuchkov's III Corps on the left. Kutuzov had by this time brought Tolstoi's IV Corps from its original position on the right and placed it behind Docturov's VI and Raevski's VII Corps.

Grand Assault

At this stage of the battle, when Napoleon was about to concentrate his efforts on the capture of the positions held by Docturov and Tuchkov on the flanks of the Russian line, he received word of a threat to his own left flank. Uvarov's 1st Cavalry Corps had crossed the Kolotza River and attacked the troops of the IV Corps which Eugene had left to hold Borodino and to guard the left flank. This situation prompted Napoleon to send Eugene across the Kolotza with a division and some cavalry. Uvarov, whose force was less than 5,000, was repulsed after a short battle and he withdrew. The threat to Napoleon's left flank being removed, Eugene returned to his position before the great redoubt, leaving only the original defenders at Borodino. Except for delaying the final assault on the great redoubt this minor action was of little consequence. However, this threat coming when it did may have given Napoleon some doubts as to the advisability of committing his last reserve, the hitherto untouched 20,000 men of the Imperial Guard.

When Eugene returned to his corps position opposite the great redoubt, the

grand assault on that fortress began in deadly earnest. Four hundred guns were brought to bear on the earthwork, and there were batteries pouring fire into it from the front and from the south flank, where Napoleon now had guns in position on the captured Semenovskoi redans. For the attack Montbrun's 2d Cavalry Corps was detailed to support Eugene by charging that portion of the line immediately to the south of the great redoubt. The infantry and cavalry attacked simultaneously. The great mass of horsemen crashed through the Russian line, wheeled to the left, and galloped into the rear of the redoubt just as Eugene's infantry was mounting the ramparts. The four regiments defending the earthworks were cut to pieces by the combined action of the French cavalry and infantry and a huge breach was made in the Russian line. Eugene immediately took advantage of the situation in order to exploit his success and directed all his corps cavalry and that of Grouchy's 3d Corps through the gap to pursue the retreating Russians.

Despite the speed and energy with which he acted, Eugene's plan was forestalled by Barclay who counterattacked with the 2d and 3d Cavalry Corps under Korf and Pahlen. The superior condition of the Russian horses and their comparative freshness at this time effectively prevented the French cavalry from turning a local defeat into a disorganized retreat, and the French advance was checked 500 yards beyond the great redoubt.

Barclay had in the meantime issued orders to Tolstoi to mount an attack against the French at Semenovskoi with his IV Corps and those units of the V Corps who had not yet been engaged. Tolstoi apparently experienced some difficulty in organizing the attack, and the lengthy preparations were observed by Davout and Ney who were quick to apprehend their significance. The French troops holding the positions around Semenovskoi were

exhausted and disorganized after capturing the redans, and a further request was sent to the Emperor for reinforcements from the Imperial Guard. This demand was also refused but Napoleon sent forward his reserve of heavy artillery which supplemented the marshal's resources by 80 cannon which were placed in position before Tolstoi's attack was under way. When the Russian assault eventually moved against Semenovskoi, it was received with such a shattering blast of gunfire that it foundered and petered out. Tolstoi himself was wounded in this attack, together with most of his staff and divisional commanders. At 1600 the Russians withdrew.

The concluding action of the day was the advance of Poniatowski on the French right flank where he finally succeeded in capturing the knoll beyond Utitzza and in forcing the Russian left to make a substantial withdrawal. To some extent the retreat of the Russians on this flank was prompted by the necessity of making their front conform to the general line of the Russian defense, and not entirely due to the efforts of the French V Corps. Poniatowski had begun the battle with a mere 10,000 men in his corps and his comparative lack of success may be attributed to the small numbers of troops at his disposal. During this closing phase of the battle, hostilities along the entire front subsided, activity being limited to the exchange of gunfire which continued until nightfall.

At the end of the day the contracted Russian front was a curving line which extended outward from Gorki on the north to a small hill south of the Old Road and about 2,500 yards east of Utitzza. The Russian corps were disposed as follows: at Gorki and extending to the south was VI Corps, followed by the IV, the VII, the VIII, the II, and III, the last-named corps being on the left flank. In the rear stood the V Corps in reserve and three corps of

cavalry; Uvarov's 1st Cavalry Corps held a position on the extreme right flank. The French line, although it had moved forward, had altered very little since the beginning of the battle. Eugene occupied Borodino and the great redoubt; Davout and Ney had captured the redans and were holding Semenovskoi village; and Poniatowski was on the knoll a thousand yards east of Utitzza. Junot's VIII Corps had been moved into a position between Davout and Poniatowski and was holding that section of the line immediately east of Utitzza Wood. There were detachments of Grouchy's cavalry on the left flank opposite Uvarov's patrols, and the troops of the Imperial Guard were in reserve around Shevardino.

The Retreat

The new line held by the Russians had little to recommend it as a defensive position, yet the Russian troops retained their fighting formations and were prepared to resist stubbornly if the French renewed their attack. It is the generally accepted opinion of eyewitnesses that the spirit of the Russian Army remained unbroken. Indeed there is evidence that the Russian commanders were contemplating an attack on the great redoubt the next day, but Kutuzov vetoed this proposal when he learned the extent of the Russian casualties and ordered a general retreat. The retreat began before dawn on 8 September.

Reports on the casualties of the battle vary from a maximum of 50,000 French and 58,000 Russians, to a conservative 28,000 and 40,000 French and Russians, respectively. The killed and wounded on both sides included many high-ranking commanders. Napoleon is known to have lost 43 general officers, and Kutuzov lost even a greater number, including Bagration, Tuchkov, and Tolstoi. During the battle the French artillery expended 90,000 rounds of ammunition which were fired at an average rate of 7,500 rounds an hour into a front $2\frac{1}{2}$ miles long. The quantity

of ammunition fired by the French muskets has been estimated at more than 2 million rounds.

Borodino was almost entirely a frontal battle and, except for isolated instances of local enterprise and cooperation by some of the formation commanders, was completely lacking in the grand tactics which had hitherto characterized the battles of Napoleon. An obvious violation of the accepted principles was the failure of Napoleon to apply the rule of *concentration*, particularly in view of the vulnerable disposition of Kutuzov's army at the outset of the battle.

It has been suggested that Napoleon's reluctance to adopt what was clearly the most advantageous course, that of attacking the Russian left in strength, was based on his appreciation that a demonstration of force in this sector would cause the Russians to withdraw prematurely, thereby denying him battle. Such may have been the case, yet once the battle was joined there was no doubt that Kutuzov intended to stand and fight. It is, therefore, difficult to understand why the French failed to make a drastic alteration in their plan as soon as the true strength of the Russian dispositions had been ascertained. Napoleon did eventually achieve two objectives, the redans and the great redoubt. Both of these features were ultimately taken by concentration of force, but only after many thousands of troops had been dissipated in a drawnout frontal battle which had afforded Kutuzov the opportunity of moving almost two-fifths of his army into the threatened area.

Criticism

Napoleon has been criticized for excessive caution in refusing to commit the Imperial Guard at a time when the intervention of 20,000 fresh troops might well have inflicted a decisive defeat on the Russians. It is evident that when arriving at his decision to withhold the Guard, the dominating factor which influenced Na-

poleon was the principle of *security*. He, more than anyone, was capable of appreciating the gravity of his army's plight in Russia, and he was fully aware of the disastrous consequences should the hard core of the French Army be defeated 800 leagues from France. The French commander had further justification for withholding the Guard as he had no information concerning the number of Kutuzov's reserves. Recalling the reckless waste of Russian soldiers during Tolstoi's last attack against Semenovskoi, Napoleon may have concluded with good reason that Kutuzov still held a substantial reserve, for it is unlikely that any commander would otherwise sacrifice so many troops at such a late stage in a battle. Finally, there is no doubt that Napoleon was gravely perturbed by his obvious failure to appreciate the great fighting qualities of the Russian soldiers and their capacity for absorbing huge losses. In view of the precarious state of the French Army, this knowledge was sufficient reason for not hazarding his one remaining battleworthy formation.

Maintenance of morale is a principle which, in modern war, is considered one of the essential requirements of any successful operation. Yet if a present-day general deliberately set out to destroy the morale of his army, he could choose no more effective means than those adopted by Napoleon in his conduct of the Russian invasion in 1812: the troops of the *Grande Armée* were given no rest; they were half starved; and they were subjected to an exceedingly harsh code of discipline. The cause upon which they were embarked had little or no appeal for the rank and file. Indeed, the futility of the entire campaign must have been apparent to many of the army after it had left Smolensk. Paradoxically, Borodino, which was the culminating action of the invasion, provides one of the best examples of offensive spirit found in military history.

An analysis of the behavior of the French Army at Borodino reveals that the qualities of discipline, training, and leadership contributed most to the high level of morale. To these may be added the instinct of self-preservation, for it must have been obvious to many that the survival of the individual depended on victory and the continued existence of the French Army as a fighting entity.

The tactics of the Napoleonic armies were dictated by the limitations of the musket. It was, therefore, essential that the maximum standard of discipline and training prevail in order that units could develop the most effective volume of fire. This demanded from the soldier a high degree of coolness, courage, and manual dexterity in the operation of his weapons, particularly under fire. The social and economic environment of Napoleon's conscripts was a decided asset in preparing them for the rigorous life of the army; yet conditions of the service were much harsher than those prevalent in civilian life. Discipline was extremely severe and in the field summary executions for minor infractions were commonplace. However, it was this code of discipline that enabled the infantry square, armed only with muskets and bayonets, to withstand the shock of charging cavalry without breaking. This code of discipline also enabled Napoleon to tax the endurance of his troops far beyond those limits expected of the modern soldier.

When the *Grande Armée* reached Borodino only the strong remained. The French soldiers who fought the battle were hardened veterans who had learned to get along with the barest necessities in a hostile country left desolate by the retreating enemy. They had unquestioning faith in their leaders and supreme confidence—born of many past victories—in their ability to destroy the Russian Army. This confidence was due not only to the quality of their leadership but also to excellent unit ad-

ministration. Practically all the senior officers had gained wide experience in Napoleon's earlier campaigns. Even the noncommissioned officers had extensive battle experience, for it was Napoleon's order that no man could hold the rank of sergeant with less than 2 years' service.

Both Kutuzov and Napoleon commanded a great measure of respect and devotion from their troops, but neither of them consciously exploited this situation to any extent on the day of the battle. In the case of their subordinates—the regimental and general officers of both sides—personal leadership played a vital part in the course of the battle. The example set by the Russian and French officers inspired their troops to perform prodigious feats of bravery and self-sacrifice. The conduct of Ney, whose courage was one of the decisive factors in the capture of the redans, was typical of the behavior of most officers. The fact that the officers exposed themselves to the same dangers and hardships as their men resulted in a mutual feeling of confidence and respect between all ranks and a correspondingly high *esprit de corps*.

Although not as well trained or as well led, the Russian soldier was as courageous as his French opponent, as well disciplined, and as well equipped for doing battle. Because of the rigidly defined stratification of Russian society, his social status was even lower than that of his French counterpart. But this very difference compensated for his poorer training for it increased his capacity to endure the hard conditions of the campaign. Despite the demoralizing effect of the lengthy retreat, the Russian troops at Borodino had a great moral advantage over the French: they were defending their homeland, and now that Napoleon was threatening the Holy City of Moscow the war assumed a religious as well as patriotic character. This motivating force partly explains the ferocity of their resistance and their will-

ingness to accept the enormous casualties. It speaks much for the military qualities of the French that they were capable of fighting so well in the complete absence of a great cause which would have a similar appeal to their Army.

The French Army never recovered from the shattering effects of Borodino. The negative results of the battle and the appalling casualties dealt an irreparable blow to morale and critically impaired the Army's organization and fighting efficiency. Strategically, Napoleon gained a short-term success since Kutuzov's withdrawal enabled the French to occupy Moscow; but the ultimate consequence of the battle was the complete and utter destruction of the *Grande Armée*.

Borodino was perhaps most noteworthy

in that it revealed the great limits to which the physical and mental endurance of the soldier could be tried. In this age it is hardly credible that men were capable of such great exertions or that they could accept with such passive resignation the hardships and misery of the Russian Campaign. Notwithstanding, the factors which enabled the French Army to fight under such conditions have, in the Western World, been almost eradicated by the evolution of modern social and political concepts. In the absence of any corresponding alteration in the fundamental structure of Russian society it is reasonable to assume that the modern Russian soldier possesses, in equal measure, those attributes of the peasant conscripts who fought Napoleon's army at Borodino.

The Twelfth Army in the Balkan Campaign of 1941

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Leo Hepp in "Wehrwissenschaftliche Rundschau" (Germany) May 1955.

IN CONFORMITY with the situation at the time Directive Number 20—Operation *Marita*—was issued Twelfth Army was to conduct the campaign in the Balkans only against the Greeks. Although German troops and command personnel had seen service in the Balkans during World War I, in the period between the two world wars this region was on the margin of German military and political thought. Neither the German military command nor German troop training was adjusted to its peculiarities. The mission required that the commander of the Twelfth Army not only have comprehensive knowledge and experience in the strictly military field with regard to the preparation and execution of an operation over very difficult terrain with the employment of motorized formations and mountain troops, but also an instinctive feeling for the geographic peculiarities of the entire area as well as the ability to grasp the multiple political

problems of southeast Europe. There was very little time in which to prepare for the operation.

It can safely be said that Field Marshal Wilhelm List, the commander in chief of Twelfth Army, had the qualifications for this difficult task. As a former engineer, he knew how to estimate the difficulties presented by the crossing of the Danube and the subsequent battle for the strongly organized Metaxas Line. As the former commander of the Kempten Rifle Battalion, he was well acquainted with the problems of mountain warfare. A former member of the Bavarian General Staff, Field Marshal List had served in all the most important general staff posts. As former Chief of the Training Section of the Reichswehr Troop Office, he was able to give the infantry divisions of the Twelfth Army valuable hints for their partial changeover to mountain warfare. Already commander in chief of an army in the

campaigns against Poland and France, the modes and possibilities of employment peculiar to armored formations were also familiar to the Field Marshal. Born in Württemberg and raised in Bavaria, a southern German, he possessed an instinctive insight into the mentality of the various peoples of southeastern Europe. His degree of education and his quiet but very decided manner won for him the highest esteem. These characteristics were reinforced by his impressive outward appearance—a point of no little consequence in the Balkans.

Railway Transportation

The basic political negotiations with the states of southeastern Europe—Hungary, Romania, and Bulgaria—and the number of troops to be used had been conducted by the Foreign Office. The solution of the problems of transportation and strategic assembly as well as the preparation of supplies had been worked out by the Wehrmacht High Command and the Army General Staff. The commander in chief had the task of deciding on the groupment and deployment of the troops as well as improving the political situation to ensure the smooth execution of his plan.

As we have already noted, the preparation and execution of the railway transportation was not one of the official duties of the commander in chief of the Twelfth Army, but was worked out by the Chief of the Transportation Service in the Army General Staff. If, however, it is touched on here, it is because the transportation of the Twelfth Army, with 12 infantry and mountain divisions, 6 armored and motorized infantry divisions, the ground organization of the VIII Air Corps, and 271 trains for ammunition, rations, clothing, and engineer equipment for Romania, and an additional 128 trains with supplies for Bulgaria, represents a feat which is worth study by any general staff officer.

On 1 January 1941 the points of the transportation movement—which was di-

vided into three sections—passed through Vienna in their rapidly scheduled transit and pushed on over three pre-established routes into the detraining areas in the Dobruja and the Walachia regions. The crossing of the southern Carpathians as well as the detraining at the railway stations, which were often of a very primitive type, under severe winter conditions required great organizational skill and the ability to find emergency aids of many kinds. Only when one considers also that all this had to be done over varying and, in part, very poor railway lines as well as in collaboration with the officials of two foreign railway lines who had never been schooled in the execution of such large-scale operations is one able to obtain a correct idea of this extraordinary feat. On 1 March 1941, the so-called A-day, the 6 infantry and mountain divisions and 6 armored and motorized infantry divisions of the first and second sections, and the VIII Air Corps together with the necessary supplies destined to move into Bulgaria first stood ready and waiting in Romania.

During the assembly of the army in Romania, the commander in chief made it a point to become acquainted with the command personnel and troops coming newly under his orders, to prepare them for their missions, and shape them into a unified fighting machine.

Danube Crossing

His special concern was the preparation of the Danube crossing for the formations assembled in the Walachia region. On this largely depended the rapid penetration into Bulgaria as well as the smooth assembly on the Bulgarian-Greek frontier.

Since no safe bridges existed, military bridges of various types had to be provided. An organically assigned higher staff under an engineer general, with the necessary special troops, was organized to take care of this matter. The time had to be so chosen that floating ice on

the Danube could cause no interruption of the crossing. The crossing itself had to be effected in at least three places in order that the army might advance on a broad front. The complementary estimate by the army engineer commander of the Danube crossing revealed some of the difficulties that had to be overcome.

At the same time negotiations were in progress with the Bulgarian mediators. Their object was to obtain collaboration for effecting a rapid passage through the Bulgarian territory. In regard to this collaboration in the military sector, only the improvement of the routes by the removal of snow in the passes of the Balkan Mountains, the reinforcement of the bridges for use by heavy motor vehicles along the route of march, and the assembly of draft animals for supplementary use over particularly difficult stretches of road were sought. The precautionary arrangement for air protection in Bulgaria for the Danube crossing, advance, and assembly was the subject of very careful planning, for air attacks by English aviation from bases in Greece had to be counted on at any time. In addition to this the Twelfth Army had to take into account the great fear of the Bulgarians of intervention by the Turks with the entry of German troops into Bulgaria. This fear was not shared by the German Command. Nevertheless, the Turks had assembled the main body of their Army, about 30 divisions, in the European portion of their country on the Bulgarian-Turkish frontier. A reaction on their part to large troop movements along their eastern frontier was not entirely discounted. As a support, therefore, for the seven Bulgarian divisions that were on the Turkish frontier, a German armored corps with two armored divisions was provided.

A crisis, which could easily have endangered the timely termination of the preparations for the Bulgarian Campaign, occurred in Romania as a result of the *coup d'état* of the Iron Guard against the

Antonescu Government. The attitude of various German political personalities was not entirely clear while it was in progress. That the insurrection could quickly be put down without disadvantageous results was in part due to the quiet, clear, and decided attitude of the commander in chief of the Twelfth Army, with whom the King as well as the chief of state and the Army Command of Romania had had several opportunities to become acquainted.

Terrain

Even during the time of the assembly of the Army in Romania, the planning for the coming campaign against Greece occupied the foreground. This matter had to be definitely settled at the very outset for the nature of the terrain in Bulgaria made it necessary to make allowance, at the time of the advance of the troops into the country, for the finally desired distribution of the forces. Subsequent lateral movements could be carried out only with the greatest difficulty for in Bulgaria, north of the range of mountains along her frontier of a depth of about 50 miles, there was only one usable east-west road. In the mission which was given to the Twelfth Army, the first objective was the seizure of the coastlines of the Aegean Sea and the Gulf of Salonika. Attention was called to the "necessity for the continuation of the attack via Lárissa and the Strait of Corinth." The fact had to be taken into account in the plan of operations that not only did the objectives have to be reached in their spatial aspects, but the enemy forces in eastern Macedonia and Greek Thrace had to be put out of action at the same time.

On the basis of the reports at hand, these forces were assumed to be on the Bulgarian-Greek border and consisted of about four infantry divisions under the command of the Second Army in Salonika. It was necessary to count on the engagement of British ground forces in Greece with the view to the establishment, to-

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gether with the Greeks, of a Balkan front. The British strength was not predictable at this time—February 1941. It could not be predicted in advance whether British forces would show up in the initial phase of the attack on the Metaxas Line or only during a subsequent advance into central Greece. It was likewise impossible to judge with any certainty the strength and prob-

concentration of forces at a few points, and as a result it was impossible to place more than a limited portion of the formations—which otherwise were in sufficient numbers—in the frontline. This was especially true in the case of the armored divisions. Terrain and fortifications on the front permitted the employment of the motorized units only after a breakthrough

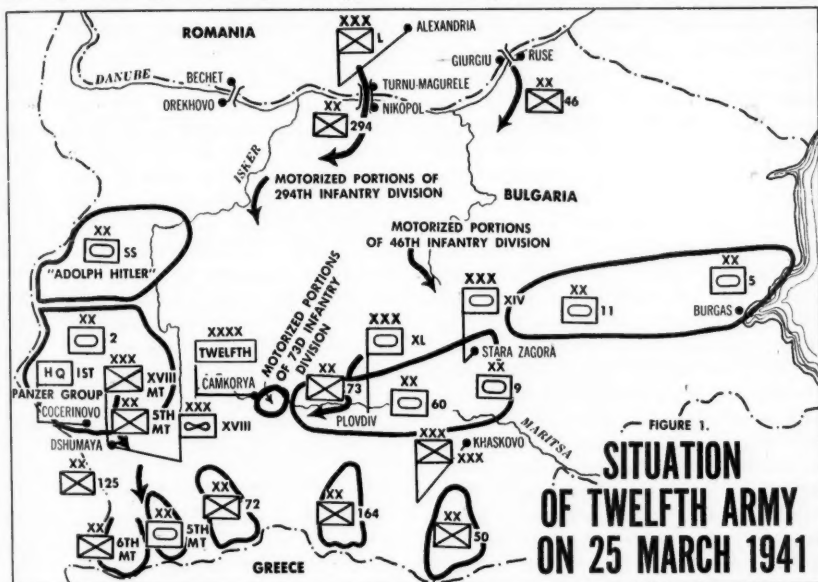


FIGURE 1.

SITUATION OF TWELFTH ARMY ON 25 MARCH 1941

able activity of British aviation. It was, however, to be assumed that it would attempt to establish as strong an airbase as possible in Greece. Greek aviation was not regarded as a factor of any special concern.

It was very difficult to form an opinion as to the organization of the Metaxas Line. This line was regarded as very strong at the points of the passes of the Belazika and Rhodope Mountains which extended along the entire length of the Bulgarian-Greek border—an assumption which was later confirmed. The decisive influence of the terrain necessitated a

had been effected by the infantry. The Yugoslav frontier stood in the way of an outflanking movement.

Main Effort

Any contemplated operations had to conform to this estimate of the situation. The point of main effort was to be made with two mountain divisions and a specially trained infantry regiment from the army forces to reduce the fortifications. An armored formation with two armored divisions was located by the commander in chief on the right wing. This force had the mission of effecting a rapid breakthrough

to Salonika in order to make it impossible for the enemy forces farther to the east to retreat by land toward the west as well as to open the way for the armored forces for a continuation of the operation in the direction of central Greece. Support by the Luftwaffe and the assignment of army forces for the reinforcement of the firepower of the attack divisions were in harmony with the chosen point of main effort. The plan of attack also provided for keeping in readiness one infantry division in the Mesta sector as well as along the course of the routes from Smolyan to Xánthi and Kaválla, and from Kurdzhali to Komotini. In the rear of the infantry division that was engaged farthest to the east, an armored formation also was held in readiness with the mission, after the opening of the passage leading from the mountains, of driving forward between the mountains and the Aegean Sea in the direction of Salonika. For detailed deployment see Figure 1.

Thanks to careful preparations, both entrance into and passage through Bulgaria were effected practically without a hitch. Starting at 0600 on 2 March 1941, the points of the Twelfth Army crossed the Danube over three military bridges. Over the 2-lane, 24-ton bridge at Giurgiu where the commander in chief supervised the crossing for several hours, as well as over the single-lane, 12-ton bridge at Turnu-Magurele, tank formations crossed in the early stages. The 6th Mountain Division crossed over the 12-ton bridge at Bechet which was built with Romanian bridge equipment.

Although a rapid march by sufficient motorized detachments to the Bulgarian-Greek frontier as well as the precautionary stationing of fighter aviation and anti-aircraft artillery in Bulgaria would have put an end to any uneasiness concerning a possible interference with the march through Bulgaria by Greek or British forces on the ground or from the air, the commander in chief was greatly concerned

over the exposed situation of the army in Bulgaria. With British and Greeks in front of it, an enemy by no means to be lightly esteemed, and with Yugoslavs and Turks on both flanks, neutrals who were not entirely clear in their attitude, the army without a land route hung by "three slender threads"—the Danube bridges—and was thus only weakly joined to its rear communications. The *coup d'état* in Romania, which had just been put down, had shown that the conditions in this country in the rear of the army could not be regarded as at all dependable. Also, the Soviet Army in Bessarabia constituted a serious threat which appeared to the commander in chief of the Twelfth Army still more acute as a result of the issuance, in the meantime, of directive *Barbarossa*. Although these fears were repeatedly declared to be groundless by the Supreme Command, nevertheless the Twelfth Army felt that its anxieties would be relieved only when the third assembly column, which was expected during the months of March and April, should be completely assembled in Romania with its six infantry divisions.

Change in Plan

The *coup d'état* in Yugoslavia was brought to the attention of Army Headquarters on 27 March. The operation against Greece was obviously no longer capable of being carried out in its previously planned form. The first orders of the Twelfth Army issued in accordance with Directive Number 23 of the Wehrmacht High Command for the regroupment of the army for a simultaneous attack on Greece and Yugoslavia also arrived. Field Marshal List flew to Vienna to fix the date and plan of the attack with General Paulus, the Chief of the Army General Staff, and General Baron von Weichs who with his army from Karnten, Steiermark, and Hungary had been committed for operations against Yugoslavia. These plans were not entirely in accord

with the orders of the army especially in regard to the division of forces.

Aside from a reduction in the strength of the armored formations held in readiness in reserve, there was not much that had to be immediately altered in the previous plan for the march against Greece. Rather, the possibilities which now existed for an outflanking of the fortified Greek front by means of a detour through Yugoslav territory considerably improved the prospects for rapid success.

Two missions were given the Twelfth Army with respect to Yugoslavia: first, the attack on Belgrade from the general area northwest of Sofia and from the direction of Timisoara; and, second, the breakthrough into the Skoplje basin from the area southwest of Sofia. Extensive regroupments of the armored formations had to be carried out in only a few days' time. As a result the infantry divisions of the army reserve had to be moved into their assembly areas on the Yugoslav border or changed from their previous directions of march and signal communications and supplies had to be altered to conform to the new tasks. Because of the bad road and terrain conditions this task made extremely severe demands on both staff and troops in point of orders to be issued and their execution. The troops had to become acquainted to some degree at least with the new terrain over which the attack was to be made.

Breakthrough

The army saw as its principal mission in its attack on Yugoslavia a rapid breakthrough in southern Serbia to the Albanian border. As a result:

1. The forces in southern Serbia would be cut off from the main Yugoslav Army and annihilated.
2. Yugoslavia and Greece would be cut off from one another and collaboration of their armies prevented.
3. The unity of the operation of the Twelfth Army against Yugoslavia and

Greece would be ensured by possession of the Vardar valley and the Bitolj basin.

4. A united front against Greece would be established by a union with the Italians in Albania.

According to the view of the commander in chief of the Twelfth Army, this point of main effort had to be considered in the distribution of forces. The groups of forces to be committed against southern Serbia had to be made so strong that after their breakthrough to the Albanian border they would be able to provide a sufficiently strong cover for their northern flank and immediately continue their operation together with strong armored forces across the Bitolj basin, the natural gateway between Yugoslavia and Greece. Contrary to this basic idea, the Supreme Command wanted the majority of the armored formations at the disposal of the Twelfth Army employed in the direction of Belgrade. According to the view of the Twelfth Army, as seen from the operational standpoint, they would find great difficulty in operating effectively because of the nature of the terrain.

The commander in chief of the Twelfth Army was able to prevail in only a few of his ideas. Nevertheless two armored formations were finally allowed him for a breakthrough into southern Serbia. A comparison of Figures 1 and 2 shows the regrouping that had to be done for the strategic assembly for the operation against Yugoslavia. The date for the attack on southern Serbia and Greece was set for 6 April; for that on Belgrade, 8 April. The Army Order Number 4 of 2 April expressed the intention of the Twelfth Army as follows:

The Twelfth Army will make a surprise attack on D-day over the Yugoslav-Bulgarian border from Kyustendil to west of Petrich as well as over the Greek-Bulgarian border and will crush the enemy forces in southern Serbia and Greek Thrace.

The objective of this attack is to push

through as rapidly as possible to the Albanian border west of Skoplje, across the Vardar toward Edessa-Véroia, and to Salonika and the northern coast of the Aegean Sea in order to create the condition for the annihilation of the separated Yugoslav and Greek-English groups of forces which was to follow.

The further mission of the Twelfth Army is together with *Panzergruppe 1* to push forward on B-day from the area northwest of Sofia; on C-day from the western part of Romania—Timisoara region—to move forward in the general direction of Belgrade in order to break up the enemy forces at Nis and Krusevac as well as northwest of Belgrade, and to quickly occupy the Serbian capital city and seize the railways and highways from Belgrade to Nis and Sofia, as well as the Danube, for German use.

The operations, which began on 6 and 8 April as planned, proceeded almost everywhere in accordance with expectations. The attack of the 2d Panzer Division over Serbian territory through the Strumica valley and past Lake Dojran on the west, aimed at Salonika, developed most favorably. Together with the breakthrough on the Greek frontier it led to the capitulation of the Greek Second Army of about four or five divisions on 9 April after 3½ days of fighting.

The breakthrough of the Metaxas Line on both sides of the Rupel Pass was unexpectedly difficult and costly in spite of the heavily concentrated fire of heavy army artillery, antiaircraft artillery, and bombing by aviation. The Greek Army showed itself in this area to be unquestionably the most powerful adversary the German soldier had faced during the war up to this time. The question arises whether the forcing of a breakthrough of the Metaxas Line was necessary. Because of the possibility of circling around the line through Yugoslav territory the prospect existed of a quicker and more easily obtained success by outflanking the left

Greek wing and thereby encircling the Greek Second Army in the Salonika area. The necessity of the breakthrough of the Metaxas Line will have to be conceded, however, for the following reasons:

In the first place, so quick and decisive a result on the part of the outflanking group could not be foreseen. At any rate, it was not certain that the Greek Second Army, if not vigorously attacked everywhere, might not abandon its border positions east of the Rupel Pass and concentrate its forces farther west for the protection of Salonika and the Greek-Yugoslav border.

In the second place, it was absolutely necessary for the Twelfth Army to obtain possession as quickly as possible of the route through the Rupel Pass, the only suitable one between Bulgaria and Greece. This was the reason for an active continuation of the operation against central Greece. If the breakthrough were not effected, it was possible that the crews in the strong, well-armed, and adequately supplied works of the Rupel Pass might continue to hold out for a period after Salonika had fallen as a result of the outflanking movement and make this important route useless to the army.

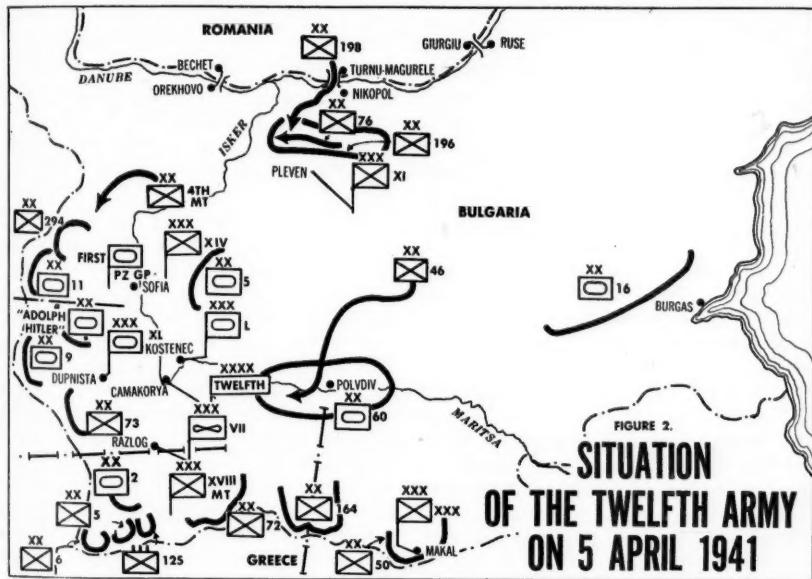
The irruption into southern Serbia had also been very successful. The enemy forces in this area, caught by the surprise attack, were almost unable to offer organized resistance. On the fourth day after the beginning of the attack the XL Army Corps with its two armored formations and one infantry division was able to join forces in the Prilep-Bitolj area with the XVIII Mountain Corps which had been dispatched from the Salonika area. These forces were to deliver the decisive blow against the British and Greeks in central Greece and, at the same time, to crush the front of the main Greek Army in Albania.

These operations also developed favorably at first, although the British, making skillful use of the terrain in several places, offered very stubborn resistance.

It soon became clear, however, that the British after the German breakthrough into central Greece were now fighting only for time and, presumably, were already considering withdrawal from Greece by way of the sea. Recognizing this situation, Field Marshal List intended to prevent any such development and to engage the British in a decisive battle in the Lárissa

negotiated the capitulation of the Greeks on the Lárissa airfield.

Unfortunately this capitulation had a very unpleasant sequel. At the protest of the Italian chief of state, the Wehrmacht High Command without ceremony called the capitulation negotiated by the Twelfth Army invalid and began other negotiations which were to be conducted by a represent-



basin. This effort manifested itself partly in very vigorous orders and partly in personal intervention.

Beginning of End

On 20 April the commander in chief of the Greek Epirus and Macedonian Armies offered to capitulate after the situation had become hopeless for him as a result of the advance of German forces through the Pindus Mountains across the Metsovo Pass into the deep right flank and rear of his army. In accordance with authorization granted by the Supreme Command, Field Marshal List on 21 April

active of the Wehrmacht High Command and an Italian representative directly with the commander in chief of the Greek Epirus and Macedonian Armies.

This conduct on the part of the Supreme Command must have appeared very strange after it had agreed to the handling of the capitulation by the commander in chief of the Twelfth Army with the clear understanding that the offer of capitulation of the Greeks also included the latter's forces opposite the Italians on the Albanian front. It constituted a damaging blow to Field Marshal List, the representative of the German Army in the

southeast, who in the eyes of the Greeks had lent legal force to the capitulation document by word and signature. In addition to this, unpredictable results could follow if, through any kind of delay, the date agreed on with the Greeks for the armistice was not observed by the Italians.

The renewed capitulation negotiations on 23 April at the Army Headquarters in Salonika between General Jodl and an Italian general on one hand, and the Greek General, Tsolakoglu, on the other were embarrassing to the Greek commander in chief. This was mitigated to some degree after the conclusion of the negotiations by Field Marshal List inviting the Greek commander in chief to be his guest, and also by his doing everything he could to make the hard fate of the Greek General easier.

In his Army Order of 23 April the Field Marshal informed the troops of the capitulation that had been effected together with the words: "You will deal with the Greek prisoners and act toward them in the way that they, as brave soldiers, merit."

All of the Greek soldiers, inclusive of their officers, were released to return to their homes immediately after the capitulation.

Despite the efforts of the Twelfth Army to engage it in a decisive battle in central Greece, the British Expeditionary Corps, by means of a skillfully conducted withdrawal action and excellent exploitation of the terrain, which was very suitable for that type of warfare, had been able to withdraw. The British Fleet took advantage of all opportunities to remove the ground forces freed during the withdrawal. However, by means of vigorous frontal pursuit and a particularly vigorous employment of the Luftwaffe against the vessels used, heavy losses were inflicted on the British and the strength of their Expeditionary Corps was reduced by one-fifth in point of personnel by the end of the operations on the Continent.

The British were forced to leave behind the greater part of their heavy weapons, miscellaneous equipment, and motor vehicles. The British inferiority in the air was most unfavorable to them and resulted in many of the transports in the ports and on the sea falling easy victims to the dive bombers of the VIII Air Corps. For the desired decisive victory over the British, the Twelfth Army was unable to effect an encirclement by way of the sea or by means of an air landing of sufficient combat strength. An effort by a parachute infantry regiment to intercept the British as they withdrew from the area around Athens to the ports of the Peloponnese came too late and missed the British forces entirely.

The successful continuation of the Balkan Campaign is represented by the attack on Crete. By Directive Number 28—Operation *Merkur*—the command for the operation was transferred to the commander in chief of the Luftwaffe. The Twelfth Army was to participate only to the extent of making available to the air landing corps certain forces, chiefly the 5th Mountain Division, for covering the areas where the landings were to occur, both on the Greek mainland and the islands, and for supplying the forces in Crete. The XI Air Corps was to make the attack. The commander in chief of the Twelfth Army closely followed the fighting in Crete because units of his command were actively engaged in it and because he felt that after the conquest of the island its defense would fall on him.

Communications

The matter of signal communications had required particular study and preparation. For the purposes of operational command, connections had to be ensured with the German national network across several countries; for the command inside the army, efficient networks had to be established in the various countries for the strategic assembly and preparations for

the attack. Out of consideration for the enemy radio reconnaissance and the equipment at that time available—directional transmission had not as yet been introduced—communications were to be changed to wire.

It must be regarded as an extraordinary accomplishment by the German signal communication forces that they were successful in adapting the various networks, which varied greatly in system, development, and efficiency, to the German system and in joining them with the German national network into a dependable, unified, operational network. In so doing, they created an important prerequisite for easy command over the distances which, under the conditions of that time, were to be regarded as considerable.

The signal connections of the forward corps troops likewise met the requirements. Only in the matter of radio communications which, in the Polish and French Campaigns had been entirely satisfactory, were certain defects evident at times. The great distances to and within the armored formations, together with the influence of the mountainous terrain, could not always be negotiated by the radio equipment available. Another thing that was lacking was a knowledge of frequency characteristics based on scientific principles to serve as a basis for frequency allocations suited to the changing conditions controlling the propagation of the electromagnetic waves. This was true especially in the case of the newly introduced shortwave sets for operational communications. During the later campaigns the Central Bureau for Frequency Advice and the growing familiarity of the troops with the peculiarities of long distance shortwave communications did away with these difficulties.

On 30 April 1941, with the capture by the 5th Armored Division of several thousand British troops in Kalámai, a small port city in the southern part of the Peloponnese, the operations of the Twelfth Army

on the Greek mainland which had been carried out with unprecedented speed and very few German losses came to an end. In addition to the superior conduct of the operations, as well as to the bravery and skill of the troops, and the high degree of training and modern armament, success had been due, above all else, to the outstanding cooperation between the ground and air forces. The close, trustful, and understanding contact between the staffs of the Twelfth Army and the VIII Air Corps had made flexible support by the air arm possible at all times. This support was always suited to the needs of the over-all planning and alternated between direct support of the ground forces at the points of main effort and the more operational objectives in the engagement of enemy movements and enemy naval and air forces.

Conclusions

On 1 June 1941, with the complete conquest of the island of Crete which unfortunately had been very costly, the combat operations on land in southeast Europe were for the time being brought to an end.

Originally begun because of the necessity of coming to the aid of the Italians, the development and result of the Balkan Campaign had changed the entire war situation from the ground up. The logical conclusion should have been drawn by the responsible superior commands and their decisions elastically changed to fit the altered situation.

A study and evaluation of the measures of our Supreme Command during World War II causes one to suspect that critics are given to basing their judgments on faulty execution of details rather than primarily on the war as a whole, planned as it was with scrupulous preciseness. It may, however, be necessary and profitable at times to study an individual operation detached from this background in which lessons of permanent value may be learned.

Such a case apparently lies before us.

The outcome of the Balkan Campaign must have appeared to the strategically minded soldier as a beckoning gesture of the hand of destiny. What was more logical than to follow the basic military rule of complete exploitation of a great success? The new situation in the Mediterranean area had suddenly opened up the possibility of dealing a decisive blow against the British, the principal opponent, by shifting the point of main effort of the war and joining it with cooperation from the African Theater. That this unique opportunity was turned down was due to strictly continental thinking and to the traditional German inability for accurately judging world affinities. A large part of the Officers' Corps was not entirely free from blame. Therefore, the fateful decision to attack the Soviet Union was tenaciously clung to and this constituted the decisive and irrevocable step on the way to final military defeat.

Directive Number 31 which was issued on 9 June 1941 designated Field Marshal List as Wehrmacht Commander of the Southeast. It was a vast, comprehensive, and difficult task. As a result of serious illness, the Field Marshal was not able to exercise his authority very long. However, during this period the first attempts at revolt occurred, particularly in Serbia. They were due to various causes. To begin with the new "order" imposed by the Axis on the Balkans had not taken sufficiently into account the extraordinarily complex conditions existing in the southeast with its centuries-old antagonisms between Italians and Greeks, Bulgarians and Serbs, Croats and Serbs, and others. The Chief of the Army General Staff, Colonel General Halder, on the occasion of a visit to the Twelfth Army Headquarters, resignedly explained this attempt at a settlement

somewhat as follows: In the Balkans the politicians have again seen to it that the soldiers shall not go hungry. In addition, with the beginning of the Soviet Campaign on 26 June 1941, there flamed up communistically inspired resistance to the German Wehrmacht as well as Pan-Slavistic tendencies. The memory of former Russian aid and comradeship in arms also resulted in opposition to the Germans. The resistance was favored by the almost complete removal of combat worthy formations from the southeast area, a measure made necessary as a result of the Soviet Campaign. The Balkan Campaign had passed over these countries, especially Yugoslavia, as a short but violent storm. The complete seizure of all arms which was necessary for complete pacification, the establishment of an administration loyally cooperating with the occupation authorities, as well as positive policing of the area by suitable formations had, of necessity, to take a subordinate place in the face of the imperious demand for freeing as many forces as possible for the campaign in the east.

In the interest of the security of the entire war effort as well as for the protection of his soldiers, the Wehrmacht Commander of the Southeast was compelled to act by force of arms against the resistance movements which were fighting for their national freedom. These resistance forces waged the struggle in the manner in which they had been trained during the centuries of bitter fighting against the Turks and during the uprisings in World War I against the Austro-Hungarian Army. To combat this the Wehrmacht was forced to adopt methods of fighting for which it had not been trained. It was for this type of fighting that Field Marshal List was held accountable by the Allies after the war.

The Role of Geography in Military Planning

Digested by the MILITARY REVIEW from an article by Alexander J. LaRocque in the "Canadian Army Journal" July 1955.

TO MANY geographers, military geography is an imprecise term. Today, this aspect of geography is thought of as the relationship of geography to military science; the relationship of some or the total of all the environmental factors such as relief, climate and weather, vegetation, soils, lithology, drainage characteristics, and cultural features to the solution of military tactical and strategic problems. The existence of such a relationship is not new. The elements of the environment have played important roles in all wars from those in which the stone hammer was the principal weapon down to the present time. However, the existence of a consciousness of such a relationship by the military planner dates only from World War I. This concept of military geography was long prominent in German military thought. The Germans were the first to recognize the usefulness of geography and the natural sciences and to realize their contribution to military intelligence. A course in terrain analysis was given to German soldiers of all ranks. At the present time, all military planners take cognizance of the military implication of the terrain elements as an integral function of effective military planning, both tactical and strategic.

The essential difference between the requirement of geography in tactical planning and strategic planning is similar to the same difference that exists between mapping areas on large-scale maps and mapping areas on small-scale maps. The mapper's requirement in presenting information on maps at different scales is determined by his objective. Similarly, the objectives of the tactical planner differ from those of the strategic planner.

The tactical planner is concerned with military problems within a small area. In a battalion the dimensions of the area of interest may be ½ mile wide and 1 to 2 miles deep, whereas in a corps the area may be 25 miles wide and 50 miles deep. Hence the requirement of the tactical planner is one of quantitative detail relevant to the problem. If the objective of the tactical planner is to determine the suitability of a small area for movement by a certain type of army vehicle, he will be interested in a specific soil that may affect movement by that vehicle. The tactical planner and the geographer both realize that such quantitative details can be presented only on large-scale maps ranging in scale from 1:5,000 to 1:100,000.

The circumstances surrounding the strategic planner differ greatly from those of tactical planning. The area with which the strategic planner is concerned may be global in size or that of a continent or country. The strategic planner's global approach is a function of a geographer's training and both realize that only small-scale maps can adequately show patterns for such large areas. Significant qualitative generalizations are the requirement of the strategic planner and these can be displayed only on maps whose scale is smaller than 1:100,000. Such detailed aspects as soil trafficability, although relevant to the tactical planner, may not be significant to the strategic planner.

Geography and Tactical Planning

The objectives of tactical planning that are affected by the elemental factors are related to movement, defenses, artillery, and supply in forward areas. The tactical planner's requirement is an evaluation of the terrain elements in terms of a mili-

tary problem that may exist in the very near future or, if the line of battle is not fluid, for a present situation. The time factor will often ascertain the degree of interpretation that is possible. In a fluid battle situation the geographer, employed as an intelligence officer, must provide the planner with the military evaluation in the shortest possible time. He will utilize every research source and method at his disposal—personal knowledge, literature, published maps, ground and aerial photographs—to provide a verbal or written evaluation. If the line of battle is stationary, a detailed analysis of the relevant factors may be possible.

What are some of the aspects of the various environmental factors that must be evaluated for all forms of tactical operations—ground, amphibious, and air operations?

Since modern warfare is basically a series of maneuvers upon parts of the earth's surface, an obvious element affecting all forms of tactical operations is landforms and their resultant relief. Ground operations are related to heights of land, commanding positions, and the slope of the ground. However, the introduction of modern weapons such as the fighter bomber and tank have reduced the military significance of many such landform features because of their susceptibility to aerial observation. Nevertheless, any ground operation requires the evaluation of landforms in terms of movement. Slopes on certain landforms prohibit movement by some types of motorized equipment and certain slopes may form natural obstacles to all forms of movement.

Amphibious operations require the analysis of coastal landforms such as beaches and the landforms behind the beach area which could prevent easy access inland from the beach or provide commanding artillery positions to the defender. In the Normandy invasion in June 1944, cliffs at each end of the beach provided the

Germans with artillery positions which enabled them to slow up the Allied landings and advance inland.

Landforms also are of great significance to tactical air operations. They can determine local flying conditions and facilitate or prohibit airdrop operations.

The tactical planner's requirement for an interpretation of vegetation, whether it is in terms of movement by foot soldiers or wheeled or tracked vehicles, concealment, construction, fuel, or food, can be met if the type, size, density, and distribution of the vegetation are known. Movement by foot soldiers or vehicles may be facilitated or impeded by the size, density, and strength of trees. Closely spaced trees, such as are found in the Reichswald west of the Rhine, prevent tank movement.

The increased use of aerial observation during World War II emphasized the extensive use of vegetation for concealment purposes. During the period before the invasion of Normandy, the trees, heath, and scrub of Hampshire and Dorset effectively concealed evidence of preinvasion activity and protected the troops from air attack. In Normandy the Germans utilized the *bocage*—small fields, separated by tree hedges based in thick earth banks or by stone walls—to conceal their defense positions and probably reduced the effectiveness of the Allied air attack by 75 percent or more.

Soils are another important element that affect various military activities. The determination of the flotation capacity of soils for troop and vehicle movement, the selection of locations so as to avoid unstable soils or areas susceptible to washouts or landslides, and the locating of sources of subgrade material, are some of the military problems related to soils. Knowing the dominant soil group of an area is not adequate knowledge for the problems of the tactical planner. The fact that a certain soil is a brown podzol takes on greater significance when the nature

of the parent material or mode of origin and its position in the landscape are known. The military engineer makes practical use of the soil information and the military geographer frequently has to convert pedological units to engineering units based on the physical characteristics of the soil such as texture, structure, or moisture content.

It is difficult to imagine any form of military operation that is not affected by some aspect of climate and weather. Any one of the countless climatic processes can seriously result in the success or failure of a tactical operation. Ground operations concerned with movement, construction, or shelter can be affected by temperature, precipitation, floods, visibility, and dry and wet periods. Thunderstorms changed the fine clays to a pasty clay and made tank movement impossible during a certain phase of the Normandy invasion. Amphibious operations require an analysis of such phenomena as the degree of cloudiness, fog, temperature, winds, ice conditions, and the temperature of the water. Similarly, tactical air operations require the interpretation of air turbulence, visibility, dust, fog, haze, and winds at ground level and aloft, in terms of low-level flying.

Certain tactical situations require a knowledge of the lithology of an area. The structure and texture of the available rock determine its suitability for construction and foundation materials for roads, airfields, tunnels, and large works whose locations and design depend upon the physical properties of the bedrock. In some localities the sole source of potable water may be available only in a particular rock formation.

Drainage characteristics are of great tactical importance. Wide, deep rivers whose valleys offer concealment may provide satisfactory tactical defense or an effective barrier to offensive movement. Marsh and boglands favor defenses but

are unsuitable to cross-country movement. Areas susceptible to flooding such as polder land are significant to the tactical planner.

In addition to the natural elements that have military significance, many man-made features occurring on the landscape are applicable to tactical planning and must be interpreted in terms of the objective. Certain cultural features such as settlements, cemeteries, stone fences, and road nets are as relevant to certain ground-surface operations as are many of the natural factors. The closely spaced villages of western Europe provided the Germans with excellent defense sites that could be defended by a small force of infantry, artillery, and a few tanks.

Geography and Strategic Planning

Today, more than ever, the strategic planner must look at the world as a whole. He is the professional soldier, at staff level, concerned with the planning of possible military activity upon various parts of the earth's surface. The problems that the strategic planner may be concerned with include the interpretation of the terrain for movement and disposition of troops and motorized equipment over known or unknown areas; the selection of testing and training areas so as to duplicate conditions of anticipated campaigns; the interpretation of terrain elements in terms of living conditions; and the appraisal of sites for roads, airfields, and other semipermanent installations.

Because the objectives of strategic planning are concerned with problems over large parts of the globe, the knowledge, approach, and methods of geography are closely related to the needs of the military strategist. Such planning requires the visualization of the globe as a mosaic of military regions in which the terrain elements are reasonably homogeneous or have similar diversification of environmental factors relevant to the military problem

under consideration. The only cartographical method that can show the pattern of the relative elements that are of concern to the strategic planner is the small-scale map. The map scale, whether it is 1:100,000 or 1:1,000,000 or smaller must necessarily preclude the presentation of many aspects of the environment that are considered relevant by the tactical planner. All the pertinent environmental factors and their ramifications that may occur within an area of 250 square miles must be contained within 1 square inch

on the millionth map. Therefore, only the most relevant or combinations of two or more of the more applicable factors can be considered by the strategic planner.

Geographers know that the earth is something about which we know very little. Only a small part of the land surface of the globe is covered by instrumental surveys. The selection of the significant military factor or factors in those little-known areas of the globe is an appreciable problem for the military geographer concerned with strategic planning.

The Significance of the Middle East in American Strategy

Translated and digested by the MILITARY REVIEW from an article by
Professor Ernst Jäckh in "Wehrkunde" (Germany) January 1955.

Although the calculated inclusion of the Middle East in an active American world strategy, and its organic expansion from an original limitation of Greece and Turkey to include Pakistan and Morocco covers a period of no more than 7 years—since Truman's policy and Eisenhower's tactics began the application of Bismarck's historic counsel of a "barricading" strategy—this American Middle East has become the strongest, indeed at the present time the only powerful, continental bulwark of the entire West. It has expanded from its original one-sided "West"-only character to the point where it is descriptive of a true West-East community. Thus the former division of the world into East and West is no longer limited, in its Western aspect, to Europe and America, but includes peoples of Africa and Asia joined together in common responsibility and for mutual security in the face of the so-called "East."

This significance attaching to the Middle East was not generally recognized in 1946. In fact it was even challenged. At that time I was asked by one of my class members, at the conclusion of a course on

the Middle East which I had given at Columbia University to 100 United States Army colonels, what I believed the United States would do in the event the Soviet Union attacked the Dardanelles. The question had been prompted by the publication, at that time, of the documents of the Molotov-Ribbentrop Agreements of 1940, which had been found in the ruins of the German Foreign Office. These included the documents relative to the Soviet demand for a position on the Dardanelles, a "Soviet Gibraltar," a demand which was also made by Stalin at the Potsdam Conference, but repeatedly turned down by the Allies. My answer could only be, "America will fight for the Dardanelles."

"That is unthinkable," replied the colonel. "We Americans fight for the Dardanelles?"

"Not for the Turkish Dardanelles," I replied, "but for American security which would be threatened by Soviet control of the Dardanelles."

One year later General Eisenhower, then Chief of Staff, in speaking to the Senate about defense aid to counter the Soviet threat against the Middle East, said:

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Even from the geographic point of view, there is nowhere in the world a region of greater strategic significance than the Middle East. We should all employ our means and strength, our organizational skill and leadership, to win the Middle East for ourselves.

Several years ago, at the NATO Conference in Rome, not only its defensive but also its offensive significance was emphasized. It was pointed out that if, in the event of a war with the Soviet Union, the European Continent should be temporarily lost but the Mediterranean, which is decisive for the Middle East, could be held, Europe would again be regained via the Mediterranean. In the opposite case, however, if the Mediterranean were lost, Europe could not be held. Admiral Alfred T. Mahan had said previously, "The Mediterranean has played a greater role in world history, both militarily and economically, than any other body of water of like area."

Since then, in spite of many crises, the Middle East has made progress toward the consolidation necessary for world peace—especially in the decisive year of 1954. This period has resulted in the following acts in this area: in its Asiatic portion the Iranian-British-American oil agreement and the Turkish-Pakistani-American agreement; in its European portion the entrance of American-armed Yugoslavia into the Greek-Turkish-Balkan Pact as well as the Yugoslav-Italian Trieste Compromise; and in its African and Mediterranean portions the termination of the Egyptian-British Suez crisis. All these represent reinforcements to Middle East strength in which American world strategy and diplomacy have had their part.

Concept

These examples and the geographic designations associated with them may at the same time illustrate and define the concept of Middle East as earlier proposed by Admiral Mahan and which is now uni-

versally valid. It was in this form that it was accepted by British Premier Attlee in Parliament in place of the earlier designation of *Near East*. This was demonstrated by Eisenhower on the large globe in his office while he was still president of Columbia University. Thus the Middle East is the broad, west-east quadrilateral whose diagonals extend from European Gibraltar to Asiatic Karachi, Pakistan, and from Asiatic Khyber Pass, Pakistan-Afghanistan, to African Casablanca.

This includes the inland sea of the Mediterranean with its Adriatic, Aegean, Black, Red, and Arabian Sea branches and the Persian Gulf and the peninsulas and straits formed by them. It includes 13 independent states and a dozen French, British, and Spanish protectorates in Africa and Asia, including some on the Persian Gulf, with a total population of more than 200 million.

In the arc of the common front, which stretches halfway around the globe from Arctic Thule in Greenland to the vicinity of the Himalayas, this triple-echeloned central stratum of land, sea, and air constitutes the only strong position of the West along the Iron Curtain.

Of the realities which, in Eisenhower's words, make this Middle East so unique, only three can be stressed here.

First, there is a geostrategic situation that is duplicated nowhere else on the globe. This made Alexander and Rome's East-West world empire on three continents possible and, likewise, gave the greatest Turkish-Ottoman Sultan, Suleiman, the characteristic title of "lord of three continents and two seas." There is also the fact that in this area, Asia's two peninsulas, Europe and Africa, are united to their mother country, Asia, and with the oceans which are joined together by the Mediterranean. This "lifeline" of the British world empire has assumed for America the significance of a greater

"second Panama Canal." The general and statesman who recognized geography as the "mother of policy," but who also, nevertheless, sinned against it, gave expression to this unique quality of the Middle East, whose control point at that time was still Constantinople, in the well-known words, "The power that controls Constantinople will be able to achieve world domination."

In other words, the Middle East is a turntable between, and providing access to and egress from, three continents, defensively as well as offensively, but only for an oceanic seapower reaching out to the oceanic high seas. This does not hold for a landpower that is cut off from the oceans or for an interior seapower that could be closed in by straits, such as the Mediterranean or Black Seas, the North Sea or the Baltic. We shall return later to the matter of this decisive quality.

This geostrategic significance is augmented by a geoeconomic peculiarity whose significance attains merely local and regional values and interests of world import from the point of view of war as well as of peace. Although as old and determinative as the ocean and spoken of in Biblical records, oil, the product of the earth's crust around the Persian Gulf and its hinterland, did not reveal its might until the present era, our twentieth century. When Franklin D. Roosevelt visited the Arabian King, Ibn Saud, while returning home from a Middle East conference, the latter drew in the sand a likeness of the oil wells of the Middle East and said, "The west and the east will contend with one another for this decisive area." Roosevelt reported in Washington, "We may expect the next world crisis in the Middle East"—which was promptly confirmed, too, by the Soviet Union's pressure on Greece, Turkey, and Iran. The Middle East evolved into the greatest oil-producing region on earth. It delivered to Europe three-fourths of that area's oil re-

quirements and was indispensable to Asia and America. The oil of the Middle East is not exploited by the states of the area themselves but by the capital and know-how of outsiders—United States, Great Britain, France, and the Netherlands. This oil is destined mainly for use outside of the Middle East and, in the Middle East, with the exception of the presently small quantities required for local needs, for use by the fleets and air forces of the outsiders for the security of this area. This Middle East or, more precisely, Iranian-Asiatic Abadan, is called the "fueling station of the British Fleet." It must also be recalled that the Soviet Union has only 10 percent of the world's oil production at her disposal.

Demographic Situation

This situation leads to another peculiarity—the demographic nature of the Middle East in addition to its geostrategic and geoeconomic nature. The initiative for and the distribution of production is just as foreign to the Middle East as the owners of the soil and the labor of production are native to it—chiefly Arabian and Persian. The recent regulation which permits outsiders to take only 50 percent for their risk and experience is the result of various national and international crises which have made clear the fact—of world-strategic import—that the Middle East is the central point between the world oceans, that it is the world's oil center. It is, however, also the center of the Islamic world, its land of origin, and the central point of 300 million Moslems who are spread over Asia to the shores of the Pacific and over Africa to the shores of the Atlantic and far into both Central Africa and Central Asia. With the exception of Israel, Greece, and half of Lebanon, the Middle East is Islamic and the defense of the Christian, democratic community of the western civilization is dependent on the attitude and

cooperation of this Islamic, Middle Eastern, intercontinental area in which but one major power possesses neither "imperialistic" nor "colonial" territorial or national belongings. This power is the last arrival, the United States, in contrast with century-old protectorates belonging to France and Great Britain, at the entrance and outlet of the Mediterranean in northwest Africa and the entrance and outlet in southeastern Arabia where Aden protects the connections with South Africa as well as with Australia and New Zealand.

Land, sea, and air are gifts of nature and of geography to the Middle East. Before man's conquest of the air created a new global strategy, the strategy of the Middle East was determined by the relationship between landpower and seapower. This began with the time of Homer's Trojan King in the first historical clash between the west and the east over the opening of the entrance of the Dardanelles leading into the Black Sea and continued until the last Trojan war during World War I in which the final outflanking and opening of the Dardanelles in the Salonika Dardanelles-substitute was accomplished by the French-British Mediterranean Expedition. In both cases there was repeated for the Mediterranean the lesson taught by history, the lesson confirmed by the victory of the Spartan Fleet over Athens in the Dardanelles which cut Athens off from her grain supply. There was also the defeat of Carthage and Hannibal by the Roman Fleet despite Hannibal's initial triumph on land over all of Spain and almost all of Italy. This showed the superiority of a seapower in control of the seas with capacity for transporting and blockading over a land-bound power that can be barred and blockaded—a fate that overtook even Napoleon in the Mediterranean.

As an example that may aid in defining "seapower" I recall the words of Atatürk

during World War I. In the fall of 1915 we were looking down from the ruins of Troy onto the British-French Mediterranean Fleet and I congratulated him on his victory over the British-French Expeditionary Army which had not been able to force the Dardanelles. Atatürk replied:

Yes, by the successful blocking of the Dardanelles we have shut Russia up in the Black Sea and shut her allies out—but only for awhile. We ourselves, here, behind the Turkish Channel of the Dardanelles are just as shut out as you Germans back of the North Sea's English Channel. We fought successfully at Baghdad and are pushing ahead toward the Suez Canal, but cannot reach the sea upon which we are looking. The seapower, however, which controls the Mediterranean, needs only time in which to make better preparations, to transport more men and matériel everywhere, perhaps even here again behind our backs. You and I represent enclosed landpowers which seapowers are superior to in the long run.

It was as if Atatürk had been acquainted with the thought of the seapower specialist, Mahan, "Seapower is quiet, remains unnoticeable, but is irresistible in its effects."

It was recognition of this fact that impelled Turkey to her subsequent decision to ally herself—not with a landpower again like Germany, but with a seapower, such as Great Britain and France in 1939, and the Atlantic Pact and the United States in 1951. Turkish Izmir and Iskenderon and Naples were surrounded by land and cut off from the sea by their alliance with the landpower, Germany. Through their alliance with seapowers, they not only had access to the Mediterranean but were connected with the oceans—the first as NATO Headquarters, the last as the anchoring area for the United States Fleet. A similar connection with the ocean

is to be looked for in the case of Germany as a member of NATO.

There is seapower with reference to enclosed waters, like that of Mussolini, and history shows it to be always at an advantage as compared with landpower. There is also seapower with reference to the high seas, the oceans, like that of Great Britain and the United States, and this is always superior to that based on enclosed waters. The Mediterranean is an enclosed body of water, not the ocean. Only the one who dominates, who controls the passages leading into and from the oceans, the high seas, controls the enclosed waters. Without oceanic connections, Mussolini's *mare nostrum* becomes a "prison, a pocket, and a trap." In conjunction with the oceans, the Mediterranean becomes a "highway of power, a highway leading to military decision, a highway to the future, and the key to world problems"—as indicated by various book titles. With the exception of the Turkish and Egyptian coasts, Hitler with Mussolini was able to control all the coasts of the Mediterranean; he was also able to control the air between Europe and Africa; he was even able to reach all the oceanic coastline from North Cape to the Bay of Biscay, but he could not go out onto the ocean and he could not get from the oceans into the Mediterranean nor from the Mediterranean into the oceans. The German Ambassador to Rome, Ulrich von Hassel, declared, "The Hitler regime underestimated the importance of seapower." Churchill, however, was able to state, "The fate of the land armies that are sent from Europe to Africa will be determined, in the end, by seapower." And Eisenhower was able to cross the ocean and reach Great Britain and France, Africa and the Mediterranean, and Germany from all sides.

Seapower is oceanic power—geographical position on the ocean with ensured potential in point of raw materials and pro-

duction in addition to capacity for self-protection against threat from the air, and freedom of the seas, that is, control of the oceans for transporting everything anywhere in the world, to Stalingrad the same as to Hiroshima and Korea. Oceanic power is true world power—and is also decisive for the entire Middle East. In the words of Friedrich Ratzel, "The ideal of a world policy on the basis of which one may aspire to establish a world power resides in a union of the continental and oceanic motives."

Landpower Strategy

The greatest landpower on earth, the Soviet Union, has never achieved this "union of continental and oceanic motives." She never was and is not yet an oceanic power but has, however, striven for three centuries and is now more determined than ever to become an oceanic power not only by means of a great, new naval budget but also by means of a route to and through the Middle East. There, at the present moment, the two great world powers—the oceanic and landpower, the United States, and the Soviet Union which is a landpower only—are in contact with one another. These two powers were geographic neighbors a century ago in America. America at that time was a landpower only and Russia was peaceful and still owned Alaska and northern California before selling them to the United States. They have again become geographic neighbors in the Middle East. America has now become oceanic and the Soviet Union is still a landpower. Russia's entire history has properly been characterized as a "push toward the sea." It started from Moscow's former wooden citadel, the Kremlin, at the time of the two Ivans of the fifteenth and sixteenth centuries and extended through the period of Peter and Catherine down to Lenin and Stalin. They looked to the Pacific Ocean, and to the Baltic, the Black, and Mediterranean Seas, concentrating

on Constantinople and the Middle East. This aim has been seen in 13 Russian-Turkish wars since 1677, in repeated Russian-Persian wars, in repeated Balkan wars, in the Molotov-Ribbentrop protocol at the beginning of World War II in the interest of the "Soviet aims south of Batumi and Baku in the general direction of the Persian Gulf," in periods of diplomatic pressure after World War II on Turkey as well as Iran, Greece, and Yugoslavia, and in repeated claims for Mediterranean bases in the Dardanelles, in the Dodecanese, in Eritrea, and in Libya. What the revolutionary Karl Marx formulated against Russia, Lenin and Stalin had taken up for the Soviet Union. Karl Marx wrote in 1853:

Constantinople is the golden bridge between the east and the west. Without that bridge, it is as impossible for western civilization as for the sun to circle the earth. It will be obliged to fight with Russia for that bridge. This contest will decide whether Constantinople will adopt the western civilization or whether Byzant's oriental power will be taken over by Russia in a more terrible form than ever before.

Twice in a century it appeared as if Russia would be able to achieve this "superiority over all of Europe"—in 1877 and 1923. The first time was when the Russian conqueror was able to look from Constantinople's suburb, San Stefano, at the Saint Sophia Church in Constantinople, but was then thrown back by the British Mediterranean Fleet, and Bismarck and Disraeli's Berlin Congress canceled the Russian victory. The second time was in 1923 when the Soviet Union urged Atatürk's new Turkey, which was not recognized by Europe and the United States on the grounds that it was "revolutionary," to cooperate in the founding of a greater Turkey by the amalgamation of the then 17 million Turks in Turkey and the 20

million Turks in the Soviet Union into a Soviet-Turkey. This would then have been the second largest Soviet state of the Soviet Union. It Atatürk had not been the great statesman that he was, the Soviet Union, confederated with Soviet-Turkey, would have peaceably attained everything it has become the United States historical calling to defend and conserve today—the Middle East and the Mediterranean and, thereby, all the European and Asiatic peninsulas as well as the African coastlands. In the words of an American naval publication, "Soviet control in the Mediterranean would mean the control of Europe, Africa, and Asia, and from this springboard world conquest would be unavoidable."

This would be a springboard outward to the oceans to be used by the landpower for world domination or a bulwark against world domination to be used by the seapower from the oceans—a bridge or a barrier. That is the position of the two world states which face one another in the Middle East. It appears as if Napoleon's words on Saint Helena might acquire meaning—that the world would either become a universal Russian empire or a great American republic.

It was Bismarck who so clearly saw the trend toward a universal Russian empire that his historical counsel coincides literally with the American world strategy of Roosevelt, Truman, and Eisenhower. Bismarck's Russian policy was neither anti-Russian or pro-Russian—it was Russophobic. He saw in Russia a "fearful and constant threat" because of her Pan-Slavic, revolutionary, nihilistic, and aggressive character. Bismarck, in contrast to Napoleon and Hitler, was opposed to a Russian war which he characterized as the "greater evil" because of the "indestructibility of the Russian nation." In view of this, Bismarck counseled "the establishment of protective dikes against this elementary force of which we cannot

rid the world, of 'damming it in.' This has not only become practically but literally the American policy. Also Bismarck's idea of Turkey's "defensive capacity" which would not be a matter of indifference to Europe in case of an attack by Pan-Slavism and chauvinism sounds like a mild anticipation of Roosevelt and Truman's insistence on the value of Turkey in the defense of the United States.

In the present countermaneuvering of the two world powers, the Soviet Union and the United States, NATO-Turkey in the southeast and NATO-Germany in central Europe occupy the same geostrategic position—the mutually complementary flanks or the allied bulwarks opposing the possible danger of a Soviet attack. History again becomes geography in motion.

Barricading Strategy

The American barricading strategy is essentially tripartite: security of the interoceanic Mediterranean, the connection with and between the two fronts, the north and the south; the organization of a land front in the north along the Soviet-Bulgarian-Romanian-Hungarian frontier; and domination from the south of the air front and the security of an African glacis. Each of these three concentric, semicircular peripheries has need of the other two for complete encirclement. Only systematic, unified organization guarantees concentric encirclement throughout the Middle East—on the water, on land, and in the air. The fact that, and the reason why, the central component—the Mediterranean from its oceanic inlet and outlet, Gibraltar, to its oceanic inlet and outlet, Aden—secures and reinforces the other two has already been shown and is given concrete expression by the constant presence of the powerful United States Sixth Fleet in the Mediterranean, with its base at Naples, in addition to other United States fleet units which, together with the NATO Fleet of Great Britain, France, Italy, Greece, and

Turkey, constitute the allied, oceanic-Mediterranean naval might. The result of the NATO agreement and of special American agreements with Spain, Morocco, Libya, Turkey, Greece, and Yugoslavia is that, with the exception of the Syrian and Egyptian coasts and the Albanian-Soviet position at the outlet of the Adriatic, all the coasts and ports, peninsulas and islands, straits and oil pipelines are at the disposal of allied world strategy. In Spain it is the ports of Cadiz, Cartagena, and Palma de Mallorca which are being improved with American aid. In French Morocco, the American Fleet has the use of Port Lyautey and in French Tunisia, the port of Bizerta, which is being organized into an atom bombproof second Gibraltar and the nucleus of a system of bastions securing the Mediterranean coast from Sfax to Oran. The oceanic situation of Morocco as well as of Portugal and Spain would ensure the connection of the American production centers and transportation agencies with the Mediterranean, even without Gibraltar. An American naval publication speaks as follows concerning this control of the Mediterranean:

Independently of any success in west Europe or elsewhere, as long as it does not control the Mediterranean, Moscow, no more than Hitler, can obtain a decisive victory. As long as the Western Powers control the Mediterranean, they will be able to hinder any actual global strategy of the Soviets. . . . The tremendous increase in the quantity and the complexity of military equipment makes seapower, in the future, more important than ever. Even though it is more possible in the Mediterranean than anywhere else to distinguish between the elements, land, sea, and air, nevertheless, the oceans are necessary for transporting the decisive concentration of allied might to the east.

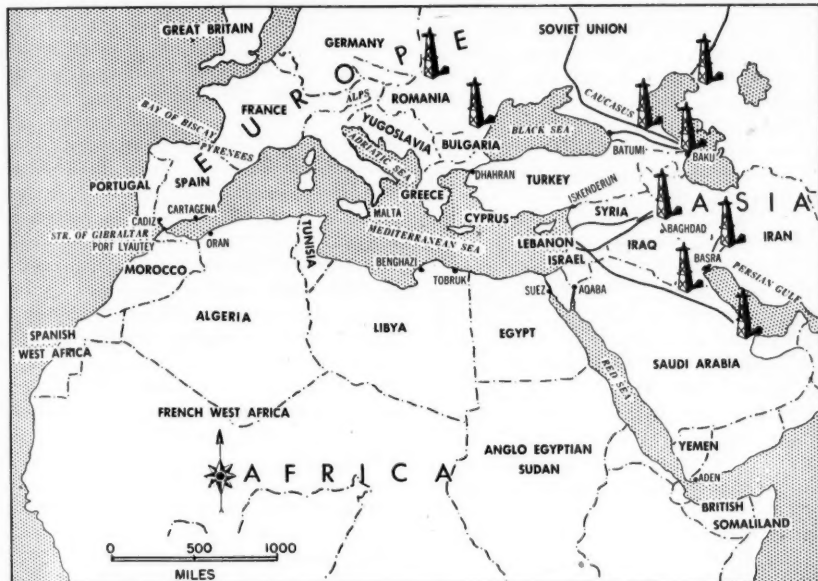
In the words of the Chief of United States Naval Operations:

The bomber does not control its element,

the air: this is the mission of the fighter plane. However, neither fighter planes nor ground combat forces are able to reach overseas battlefields in sufficient numbers without corresponding seapower.

This leads to the northern front, the northern lands of the Mediterranean basin, which will be reached and supplied from the ocean, along the Soviet frontiers: in the center, the NATO states of Greece and

"new era of cooperation." In the East it is hoped that as a result of the Pakistani-Turkish military agreement, the Khyber Pass which gives access to the Indian Continent will not only be covered, but any enemy forces pushing into the present vacuum between Turkey and Egypt will be threatened. Reinforced by combat forces from Iraq, Jordan, and Great Britain and by deliveries of bombs from Iskenderun and Beirut, it will make any



Turkey, both of them allied mutually and with Yugoslavia to the west, and Turkey on the east allied with Pakistan. All of them are equipped with United States military matériel. At the present moment, a vacuum still exists in Iran and Afghanistan, a vacuum not from the point of view of will, but of ability, resulting from internal development and stability.

Iran replied sharply to a warning Soviet note to Turkey and Pakistan before their alliance, and Afghanistan has initiated conversations with Pakistan relative to a

eventual Soviet attack on this front hopeless. It is moreover assumed that the hydrogen bomb, because of the extreme extension of the Soviet line, will make such a strategy no longer probable. In the West the Turkish-Greek-Yugoslav Balkan Pact, together with the Yugoslav-Italian-Trieste agreement, secures the important Ljubljana Pass as well as the Adriatic, and the Vardar and Morava valleys. Marshal Tito even spoke in his Parliament of the possibility of west Europe's sharing in the Balkan Pact.

Summarizing, it may be stated that in Europe the Turkish-Greek-Yugoslav community controls the historical approach route to the Mediterranean and the countries of the Mediterranean basin, and the Pakistani-Turkish community performs the same act in Asia.

Strategic Area

The central strategic point of the Middle East on land, on the water, and in the air is Turkey. At one time, when she was yet a heterogeneous nation of many nationalities, she was regarded as weak by the great European powers, as the "sick man of Europe." Today she has become a homogeneous, nationally unified, independent nation, and is now known as the "strong man of Europe." For 30 years she has been the only stable state not only of the Middle East but of the continents of Europe and Asia. She is the only European and Asiatic neighbor of Soviet Moscow in two continents. In Asia there is a common frontier of 369 miles of land and 966 miles of Black Sea coast; in Europe with Bulgaria there is a land frontier of 123 miles. Her historical anti-Russian feeling is so intense that the United States Ambassador to Ankara declared, "Without Turkey there would be no Middle East today." Her foreign policy is exemplary in its correctness. The military *élan* of her soldiers brought them distinction in Korea and the Chief of the United States Military Mission to Turkey said, "The Turk is the best soldier in the world; the Turk's aptitude for fighting is without parallel in Europe."

As previously stated to secure the connections of Mediterranean Turkey with oceanic seapower, the Headquarters of NATO's sea and land forces for southeast Europe has been located in Izmir which, under American command, joins Turkish and Greek forces. When reviewed by Chancellor Adenauer in the summer of 1954 he said: "I share the opinion of the NATO Commander in Chief, General

Gruenther, that we may rest without fear in Europe when we think of the Turkish soldier."

Izmir, after Istanbul, has not only become the second largest production center of Turkey, but is also a hydroelectric center for generating power for irrigation and flood control uses and is also the most productive region in the entire eastern Mediterranean basin. There is, in addition, the great naval base of Iskenderun in southeast Turkey near the Arabian border which has been improved by American technicians and reinforced by the Turkish Fleet. Iskenderun is an excellent natural harbor. It is protected by high mountains and is, therefore, in an ideal location for defense. Even if the other portions of the Middle East were temporarily overrun, Iskenderun could still be held for a long time. Iskenderun is also the strategic gateway through which the supplies from the United States pass and which secures the southeast flank of NATO. It is the export port for the rich hinterland which just recently has been opened through the building of a network of all-weather automobile highways—toward the northeast in the direction of the Soviet border as well as toward the west in the direction of the coasts of the Mediterranean and the new aviation centers. Finally, the area around Iskenderun is better suited than the Suez base for shelter against air and atomic attacks—one of the reasons why the Iskenderun-Adana-Diyarbakir triangle is preferred as a natural center of resistance to the former Suez base. It is also close to the oil of neighboring Iraq. To reinforce the former position, however, 5 NATO naval bases and 11 new airbases were planned for 1955.

As a matter of fact, Turkey as a NATO member and as a party to the Turkish-Pakistani Pact has replaced the Suez in importance—since the hydrogen bomb has made the Suez position untenable and also a march on it by Soviet forces impos-

able. There is the further fact that flying radii from the Suez base reach only to the southern part of the Soviet Union, and the Black Sea from Baku to Bucharest. From the Turkish center, on the contrary, they extend over the Caucasus and the Ukraine, with their oil, atom bomb, and grain production; to the dams of all the Soviet rivers with their hydroelectric installations and their associated coal and steel production; and to all the Balkan vassal states, from Moscow to Sofia and Budapest.

After the first NATO maneuvers in the Mediterranean which took place around Malta between the western and eastern portions of the Mediterranean and between Europe and Africa, all Middle East maneuvers have concentrated on the defense of Turkey and, particularly, the Dardanelles—all American, British, Canadian, Italian, Turkish, and Greek fighting forces of land, sea, and air joined together in a triphibian defense against a hypothetical Soviet-Bulgarian attack on the Dardanelles.

The absolute control of the seas which extends to and secures the land combat forces of the northern front—with the Mediterranean offering protection extending from Yugoslavia to Turkey and the Persian Gulf and Indian Ocean offering protection extending from Iran to Pakistan—is reinforced by an equally absolute control of the air. This exists not only on the northern front from Turkey but also on the southern front, from Morocco along the African coast to Arabia and Iraq, although the eight states of the Arab League under the leadership of Egypt have thus far rejected proposals for a collective Middle East security pact. This does not, however, interfere with the fact that American as well as British airbases stand ready for use not only on all the islands and peninsulas of the Mediterranean—complemented by the carriers of the American Fleet—but also all around the Mediter-

anean on the basis of 2-party agreements, extending from Spain along France's African coast and in Libya, to Arabia and Iraq, with the exception of Egypt and Syria. In Spain not only the aforementioned seaports are being improved but airfields either are being established or improved—Torrejon near Madrid, Elcopero near Seville, Morón de la Frontera also near Seville, and Zaragoza—which are all to be joined with one another and with Cartagena by fuel pipelines. In Morocco five airfields are being constructed and provided with runways of up to 2 miles long, suitable for use by even the heaviest of the American bombers. In Tunisia the naval base of Bizerta, which we have already referred to, has been complemented by an airbase. In Libya the British and French airfields in Cyrenaica—Benghazi, Tobruk, and Eladnan—and Fezzan are complemented by the United States Wheelus Air Base, one of the largest in North Africa. There are also United States airbases in Ethiopia and in the Belgian Congo. There are also airbases in Arabia with an American one at Dhahran, the central airbase connecting the airlines from Europe and Africa with India and the Far East; in Jordan with the British bases at Maan in the south and Mofray in the north; in Iraq with the British at Halbaniyah and Shayba—near Baghdad and Basra; and on the island of Bahrain, headquarters of the British Fleet for the Persian Gulf.

Field Marshal Montgomery, who on the basis of experience stresses the fact that the West can win no war with the East without control of the seas, also prophesies that the time will come when airpower will be decisive for the control of the seas. At the same time, London announces that the British Fleet has begun the construction of ships for the launching of guided missiles.

Of the Arabian states, Iraq, the rich oil land, occupies the most important position

strategically because of her position between Turkey and Arabia as well as between Iran and Jordan-Syria. Iraq controls the four mountain passes of Iran and Mesopotamia as well as the port of Basra, the main communication between Turkey and Pakistan. Iraq, in addition to her already existing alliance with Great Britain, has concluded military armament agreements with the United States—the first between an Arabian state and America. Thanks to Iraq's capable Prime Minister, we have reason to look forward to closer relationships between that country and Turkey in the future and, on the termination of the Suez Canal controversy, to possible developments for the settlement of the Arabian-Israel difficulty, especially as it involves Egypt, and to the beginning of an Arabian-Western-Middle East security system similar to the allied proposal that was rejected by Egypt in 1951. Also, the Pakistani Foreign Minister speaks of the possibility of finally bringing about "cooperation between Egypt and the free democracies," and at the same time announces a friendship and defense pact between Pakistan and Egypt. Turkey, also, is diplomatically active in her efforts to bring Iraq into the Turkish-Pakistani Pact and the Turkish President calls on "Egypt and the other Arabian states to follow the Turkish-Pakistani example." In Ankara the new Egyptian Ambassador recommends a "political, military, economic, and cultural alliance between our two lands." With the Suez controversy out of the way, Egypt not only has accepted American financial aid for railways, automobile highways, and irrigation projects, but also American arms deliveries, as has Jordan which is improving her Red Sea port of Aqaba and with it her connection with the high seas. Of all the Arabian states, only Syria is still holding herself aloof from such aid agreements.

In conclusion, we may say that the American barricading strategy is welding

a triple ring around the Middle East—on the seas, on land, and in the air—and that American equipment and, in part, training also has been agreed on and is being furnished to many states of the Middle East. On the northern front these are Spain, Italy, Yugoslavia, and Greece, jointly with Great Britain, and the Islamic states of Turkey and Pakistan. Iran and Afghanistan do not belong yet and have received only technical and economic aid. On the southern front these are Iraq and Jordan, both jointly with Great Britain, Lebanon and Arabia, Egypt and Libya, again jointly with Great Britain. It means that all Arabian states with the exception, at the present time, of Syria and Yemen are receiving military aid. The figures made public in America for the military forces of these countries are: Turkey, 500,000, to be doubled in event of war; her western neighbors, Greece and Yugoslavia, 160,000 and 500,000 respectively; their eastern and southern neighbors, Iran, 150,000, Afghanistan, 90,000, Pakistan—the most populous Islamic state with a population of 77 million—200,000 in addition to an air force and fleet, Iraq, 40,000, Jordan, 20,000—the British Arabian Legion—Syria, 20,000, Lebanon, 10,000, Arabia, 10,000, Egypt, 80,000, plus the arsenal of the Suez bases, Libya's Air Force—in conjunction with British air forces. In the midst of the Arabian states and still in a state of war with them is Israel with 120,000 and her Mediterranean and Red Sea ports.

Just as the Caribbean Sea separates and unites North and South America, so it is with the Mediterranean between Europe and Africa. Africa is Europe's richest hinterland, producing minerals vital to world strategy—uranium, cobalt, manganese, tantalum, 80 percent of the world's industrial diamonds, half the world's gold, and a fourth of the world's tin and copper. Through NATO members, Great Britain, France, Belgium, and Portugal,

these minerals and the facilities of projected African transcontinental railways are available for meeting the demands of world security. South Africa recently urged Great Britain and the other European colonial powers of Africa to establish a system of bases for regional defense and reserves of military matériel for the region south of the Equator. This development also illustrates the significance of Africa in connection with the Middle East, Africa's role as an African-European "redoubt," as a European base for the protection of the Middle East. Africa with her territorial depth and breadth, which showed its value in World War II as a strategic glacis, offers the same security as the Atlantic Ocean. Liddell Hart, the British military writer, rightly observes:

Africa is of vital significance in every defense plan of the West. Geographically and strategically, this continent is a pivotal point. It gives the combat forces of the West the opportunity to conduct their defense from the depths and a sufficiently broad base for counteroffensives. It also represents one of the greatest sources of raw materials on earth. When Africa is in the hands of the Western

Powers and has developed her possibilities, the United States and her allies will have a source of military might at their disposal which, even in the case of a long drawnout world war, will be able to surpass the Soviet reservoir and finally exhaust it.

The land, sea, and air geography of the European-Asiatic-African Middle East, its geopolitical control by the outside oceanic powers, the geoeconomic products of its soil and subsoil in the natural possession of the respective lands themselves—all this requires a mutual interdependence and cooperation in which the good will of the native populations of Asia and Africa is indispensable. The old "colonialism" and "imperialism" of Europe is now opposed by a new national self-consciousness with its demand for "native, inalienable rights." The problems of the past and the present that have arisen out of distrust and prejudice must be dealt with in the interest of the requisite stability and in the spirit of the principles whose place of origin is the Middle East, yet gave rise to the western civilization—the principles of the Fatherhood of God and the brotherhood of man—both of them symbolized in Genesis' "tree of life."

The importance of the Middle East to the free world can hardly be overestimated militarily and economically. First, its huge oil reserves now supply most of the requirements of Europe, and their loss would be disastrous. Second, its geographic location is astride the lines of communication between west and east. And third, it is only in this area that the Soviets have no satellite buffer states.

Admiral Arthur Radford

CORRECTION

In the article *The Crisis of Antitank Defense in Defense* which appeared in our August 1955 issue, line 29 in the left column on page 78 should read "adversary will take care not to attack with his tanks in the lead" instead of "adversary will attack with his tanks in the lead."

BOOKS OF INTEREST TO THE MILITARY READER

PORTRAITS FROM PENTAGONIA: Or Six Laps Around the A Ring. By Lieutenant Colonel Anthony L. Wermuth. Illustrated by Lieutenant Colonel Robert B. Rigg. 59 Pages. The Military Service Publishing Co., Harrisburg, Pa. \$1.00.

By COL ROBERT C. CASSIBRY, *Arty*

Here is truly a humorous book which presents by cleverly written word pictures and well-drawn cartoons a few of the many types of staff officers and their assistants who inhabit the Pentagon. Careful consideration was given, undoubtedly, to the selection of the 29 type personalities presented, for not once will the reader question the possibility that such a person exists or, perhaps, that he has even worked with him.

While this book can best be enjoyed by those who have served a tour in the Pentagon, or at least taken six laps around the A ring, it is by no means solely of interest to that group. The majority of the personalities presented in this book are commonplace wherever people toil in large numbers.

I hasten to add, however, that I am in complete accord with Colonel Wermuth when he says:

One needn't take seriously everything one reads and enjoys. . . . If the reader should happen to identify a type recorded here with an actual name, face, and service number that is only the reader's mistake, and not my intention.

HISTORY OF THE COLD WAR. By Kenneth Ingram. 239 Pages. The Philosophical Library, Inc., New York. \$5.00.

By LT COL WILLIS B. SCUDDER, *Arty*

Mr. Ingram has selected a subject of some magnitude to consider in a small book space. It is a very difficult subject, what with the problems involved in obtaining details as to events and incidents which must be a part of such an undertaking.

This book traces certain of the more publicized events during the period which has been commonly termed, "the cold war." An attempt has been made to maintain a neutral approach to this subject, but such efforts frequently result in bringing dissatisfaction to both sides of a controversy, and Mr. Ingram may well have succeeded in doing just that.

The author deals with such incidents as the Berlin blockade, Marshall Plan aid, the Korean conflict, the *coup d'état* in Czechoslovakia, and unrest in Indonesia and Indochina. These are subjects worthy of entire volumes; their treatment is necessarily brief in this short work.

This book is written in a very readable style. While the conclusion will provide a considerable measure of disagreement (this reviewer included) there is much merit in Mr. Ingram's attempt to portray this phase of history.

MORTARS AND MORTAR GUNNERY. 271 Pages. The Military Service Publishing Co., Harrisburg, Pa. \$2.00.

A HISTORY OF FORTIFICATION. By Sidney Toy. 262 Pages. The Macmillan Co., New York. \$5.75.

By LT COL MITCHEL GOLDENTHAL, CE

The object of this book is to trace the development of the art of fortification from the dawn of history to the period of forts designed for defense by artillery.

Mr. Toy has written an extremely well-documented study of fortifications which is the product of a lifetime of exploration, analysis, and travel. There are 100 superb photographs and 200 illustrations included.

This book describes and illustrates, with clear and fascinating maps and cross sections, fortifications in Assyria, Greece, Egypt, Rome, China, South America, the Levant, and Byzantium as well as in Europe and the British Isles. We are told how and why these forts were built; what they were like to live in and defend; and how they survived or collapsed under the onslaughts of attacking forces.

We are treated to an evolutionary treatise of defensive tactics and techniques. Famous sieges, such as those of Jerusalem, Rhodes, and Antioch are related in detail.

Officers interested in the present significantly increasing importance of barrier and denial operations will derive considerable benefit from this exhaustive but selective study.

FLIGHT HANDBOOK. Edited by Maurice A. Smith. 282 Pages. The Philosophical Library, Inc., New York. \$6.00.

By MAJ JEAN K. JONES, USAF

Here is an excellent basic text on aeronautics. It is difficult to imagine a technical aviation question confronting the military man which he will not have answered for him by this handbook. The functions of such basic elements as wings and tail surfaces, as well as such advanced functions as the operation of bypass engines, ram-jets, and other new developments, are clearly and fully presented.

Although published in Great Britain by the publishers of the magazine, *Flight*, generous coverage is afforded United States aircraft and aeronautical devices. Illustrations are extremely good and plentiful. The cutaway drawings of airplanes and engines are by the world-famous artists of *Flight* magazine. These illustrations are generally regarded as the finest of their type.

This text is up to date, authentic, well written, well illustrated, and complete. As a reference text on aeronautics it leaves little to be desired.

MARXISM: PAST AND PRESENT. By R. N. Carew Hunt. 180 Pages. The Macmillan Co., New York. \$2.75.

By COL JAMES E. MRAZEK, Inf

There are three historical stages to Marxism, the final one not yet ended. First, there was the theoretical development by Marx, Engels, and followers. Next, the applicatory stage when Lenin and Stalin attempted communism in one country, Russia. Then there is the final stage not yet completed with Marxism twisted in the interests of expediency until it no longer bears resemblance to its author. Carew Hunt actually examines all three stages with emphasis on how Marxism is cast, now re-evaluating it in light of the intent of its author.

Marxism: Past and Present is done in the highly readable fashion of a previous work by Carew Hunt in this field, *The Theory and Practice of Communism*. The former book is an effortless and quick medium to find out what is going on now in this rather complicated business. It is essential for the background of those who must know the "isms" in their professional work.

AMERICA IN RUSSIA. By Harrison E. Salisbury. 328 Pages. Harper & Brothers, New York. \$4.00.

WEST POINT PLEBE. By Colonel Red Reeder. 246 Pages. Duell, Sloan & Pearce, New York—Little, Brown & Co., Boston. \$3.00.

By COL CHARLES G. FREDRICKS, *Inf*

West Point Plebe is a heart-warming, interesting, and factual story of the cadet's experiences during the first year at West Point.

More important than the story itself is the discerning manner in which the author has interwoven into the story the rich heritage of the Academy, its traditions, and its ideals. In this respect he succeeds in conveying to the reader an understanding of West Point that would only be possible for one with long and intimate association and devotion to the Academy.

This book will be of particular interest to the prospective candidate to West Point and for those seeking an up-to-date and authentic portrayal of cadet life at the Academy.

DUEL OF WITS. By Peter Churchill. 368 Pages. G. P. Putnam's Sons, New York. \$4.50.

By MAJ FREDERICK A. SMITH, JR., *Inf*

Duel of Wits is Captain Peter Churchill's story of his assignment as a British agent in occupied France during World War II. He describes his adventures straightforwardly, making the job of organizing sabotage and guerrilla activities appear at times almost too easy.

The love interest is furnished by his courier, Lise, whom Churchill married after the war. For a novel of escape and adventure, the story moves a little too slowly and does not measure up to all expectations. The importance of the book to the military reader lies in little more than the author's accounts of his tact and difficulties in dealing with the proud French leaders of the Resistance. In only this respect does he prove that the life of an agent is more a duel of wits than a game of hide-and-seek.

AN ELEMENTARY TEXTBOOK OF PSYCHOANALYSIS. By Charles Brenner, M.D. 219 Pages. International Universities Press, Inc., New York. \$4.00.

WAR CHIEF JOSEPH. By Helen Addison Howard and Dan L. McGrath. 368 Pages. The Caxton Printers, Ltd., Caldwell, Idaho. \$4.50.

THE BRITISH SOLDIER. By Colonel H. de Watteville. 242 Pages. G. P. Putnam's Sons, New York. \$4.00.

By COL GEORGE V. BRITTEN, *British Army*

This book is devoted entirely to the British private soldier through the centuries, beginning in Plantagenet days. It describes his enlistment, military life, customs, discipline, and morale at each epoch and contains 17 pages of illustrations.

The author shows the reason for the traditional dislike by the British people of a standing Army in peacetime, and the consequent deplorable effects on the Army of the lack of public interest in it. Despite this neglect the British soldier fought well when well led, as he usually was.

Colonel de Watteville describes with humor some of the extraordinary customs of the Army of days gone by. Examples are the stratagems and guiles used by recruiting sergeants to ensnare civilians into the Army, and the care with which soldiers had to make up their unhygienic queues or pigtails.

THE MICROPHYSICAL WORLD. By William Wilson. 216 Pages. The Philosophical Library, Inc., New York. \$3.75.

TYCOONS AND TYRANTS. By Louis P. Lochner. 304 Pages. Henry Regnery Co., Chicago, Ill. \$5.00.

DEVELOPMENT OF THE GUIDED MISSILE. Second Edition. By Kenneth W. Gatland. 292 Pages. The Philosophical Library, Inc., New York. \$4.75.

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Revista Militar, Largo da Anunciada 9, Lisboa.

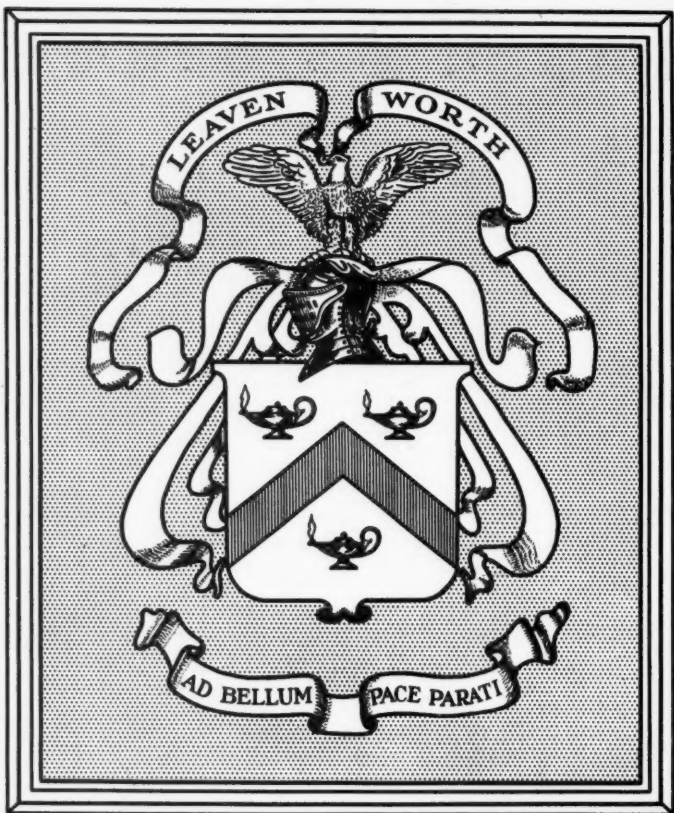
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